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COMPUTERWORLD

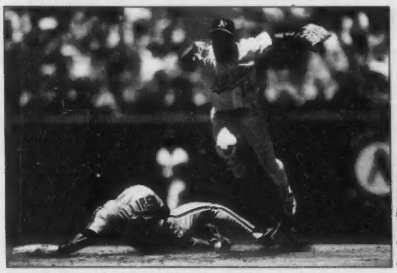
Strike! Team IS up at bat

By Mark Halper

On the eve of the major league baseball strike last week, team IS shops were preparing to stay in the game by implementing system improvements ordinarily reserved for the off-season.

Some of the major league information systems shops were also bracing themselves for an onslaught of ticket refund processing. Many IS directors said

Strike!, *page 16*



OTTO GREULE/ALLSPORT

The strike *will give IS time to work on extra projects*

PC tracking busts budgets

Centralized management tools on tap, will monitor LAN assets

By Ed Scannell
and Elisabeth Horwitt

Next year promises to be a more encouraging year for corporate information systems managers, who are rapidly losing the battle to manage hundreds and thousands of desktop systems across the enterprise.

Some vendors are now introducing limited solutions for tracking and managing departmental PC LANs. A host of products is expected later this year and into 1995 from the likes of IBM, Hewlett-Packard Co. and Microsoft Corp.

These will come none too soon for LAN administrators who see PC asset management as a regular budget-buster.

According to a recent Gartner Group, Inc. report, an automated software distribution and installation package can reduce the cost of managing software installations and updates across a 2,000-node LAN by more than 80%. That cost comes to more than $10 million over five years, the report noted.

Maintenance measure

PC SOFTWARE COSTS: $14,972*

SUPPORT		
Normal support	25%	48%
Updates	23%	
DISTRIBUTION AND INSTALLATION		
Initial acquisition	3%	18%
Updates	15%	
ADMINISTRATION		
Initial acquisition	1%	13%
Updates	12%	
OTHER: 21%		

*Average software cost over five years, based on survey of 2,000 Windows 3.0 users

Source: The Gartner Group, Inc., Stamford, Conn.

"Administering PCs is a pain. I spend more time than I want with Visual Basic writing little Windows-based executables to manage [configuration files] or moving stuff across multiple PCs," said David Day, a network analyst at DowBrands in Indianapolis.

The company has more than 600 Compaq Computer Corp. 386-based Windows clients and is on the verge of moving from Banyan Systems, Inc.'s Vines to Microsoft's Windows NT Advanced Server. The driving force behind that move is the ease of administration features that NT Advanced Server offers, in combination with Microsoft's upcoming Hermes systems management software, Day said.

Across the board, IS managers are searching for more comprehensive tools that can distribute,

PC tracking, *page 14*

Hospital casts net to snag doctors

By Stephen P. Klett Jr.
DALLAS

Michael Alverson envisions health care reform as a busy intersection on the emerging national information superhighway.

"CIOs are the traffic cops," said the chief information officer at Presbyterian Healthcare System here. "You've got to watch out and be quick to react or you're roadkill."

Under intense pressure to do more with less, information systems departments at health care organizations are hungry for low-cost technology that will help distribute information to users more efficiently.

In its quest to be the No. 1 integrated health care provider in northern Texas, PHS believes Integrated Services Digital Network may be just what the doctor ordered.

On Oct. 1, the nonprofit hospital will kick off an ISDN project aimed at expanding the reach of PHS' 2,000-node network and helping it to recruit doctors.

Out of the gate, PHS will connect 10 doctors' offices, called PrimaCare locations, to its network via ISDN — free of charge. PHS said it hopes to connect hundreds of doctors to the network and, within the next couple of years, every affiliated hospital, clinic, laboratory and

Hospital, *page 28*

User lawsuits drag on for NCR

By Mary Brandel and Thomas Hoffman

Software can be damaging or even lethal to your business.

That's the heartbreaking picture presented by 30 to 50 wholesalers and financial institutions that have filed or settled suits in the past three years against the former NCR Corp., now known as AT&T Global Information Solutions, charging it with selling allegedly defective software.

Warehouse Manager, an older application marketed by NCR for its proprietary ITX operating system, is the target in the majority of the suits.

The number and range of suits that have surfaced involving NCR's older technology have grown since reports first emerged about 18 months ago [CW, Feb. 15, 1993]. More recent litigation targets a banking application running on the

User lawsuits, *page 125*

Software agents target 'cyberglut'

By Lynda Radosevich
SAN JOSE, CALIF.

Already drowning in data, computer users say electronic mail and workflow tools are only making matters worse.

Many vendors at the GroupWare '94 conference here last week provided evidence that they are working on software filtering agents that will diminish this so-called "cyberglut." Yet the problem extends beyond the reaches of today's technology. It can be addressed only by getting end users to change their habits, users and analysts agreed.

For instance, Microsoft Corp. officials interviewed here said agent technology will be built into the company's forthcoming Exchange messaging server that will allow users to automatically throw certain messages into an electronic wastebasket.

Some show attendees were

Software agents, *page 125*

Newspaper

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DEMONSTRATING THE VALUE OF TECHNOLOGY

Clearing the return-on-investment hurdle can be tough. But some creative companies, including JC Penney, S.C. Johnson, Conoco and Watkins Johnson, have found ways to do it in leaps and bounds.
SEE MANAGEMENT, page 79.

No doubt about IT

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What's Inside

August 15, 1994

Taming the Gnarly NOS

The CW Guide to Network Operating Systems: Despite their continued advances in features, the market-leading enterprise network operating systems leave gaps in key areas, which users are forced to troubleshoot. The latest upgrades also come with their own installation issues. Users rate the strengths and weaknesses of NetWare, Vines, Windows NT Advanced Server and OS/2 LAN Server in our Buyers' Satisfaction Scorecard. **Pages 88-96.**

NEWS

■ **Subnotebooks** are selling slowly, and some vendors may be considering abandoning ship. *Page 4*

■ **Sybase** is expected to make good on a 2-year-old promise to build systems management tools based on Tivoli's framework. *Page 4*

■ Low-end and midrange **client/server tools** vendors seek to address the higher end but may fall short of the mark. *Page 4*

■ IBM Chairman **Louis V. Gerstner** gives his company an E-mailed pep talk. *Page 8*

■ Compaq and Texas Instruments try to open a server **bottleneck.** *Page 8*

■ Major software vendors back off from promises to deliver **LS API-compliant** software products. *Page 10*

■ Users point to client/server **security holes,** saying that vendors are responding slowly. *Page 12*

■ The first software alternative to the **Clipper** encryption standard emerges. *Page 12*

■ Hewlett-Packard fires a preliminary salvo into the **distributed network** and systems management battle. *Page 15*

■ Dell's **new notebooks and desktops** come in at lower prices but will not spark a price war. *Page 20*

■ Digital paves a migration path to AXP for its **All-In-1** users. *Page 125*

COMPUTER INDUSTRY

■ **Digital** dissolves its consulting unit. *Page 32*

DESKTOP COMPUTING

■ Notebook **supply problems** are popping up in an unexpected corner. *Page 39*

WORKGROUP COMPUTING

■ Novell takes some of the bite out of **NetWare** upgrade costs. *Page 51*

ENTERPRISE NETWORKING

■ **Cisco's** John Morgridge expects a convergence of switch and hub companies. *Page 59*

LARGE SYSTEMS

■ **Per-user pricing** for databases from Informix and Oracle is largely unenforceable, leaving both vendors to rely on users' good will. *Page 63*

APPLICATION DEVELOPMENT

■ **KnowledgeWare** users worry about how their products will be supported in the wake of the company's acquisition by Sterling. *Page 71*

IN DEPTH

■ **Wizards,** Coaches, Advisors and Experts promise to help users work smarter, but Jared Spool of User Interface Engineering warns that today's Wizards do not represent the next generation of on-line help. *Page 99*

CAREERS

■ **OLE or OpenDoc.** Which should you learn? *Page 107*

MARKETPLACE

■ Corporate IS wields cautious control over network purchases at **remote sites.** *Page 114*

COMMENTARY

■ **Charles Babcock** says if you see breakthroughs in object technology, the credit may rest in IBM's SOM. *Page 6*

■ **Bill Laberis** warns information professionals that they cannot allow technology to take on such an aura that it smothers the rights of individuals. *Page 36*

■ **Howard Rubin** aims to dispel the myths surrounding measurement techniques. *Page 37*

■ **Esther Dyson** asks what would happen if software were free. *Page 37*

■ **Stan Schatt** says network vendors must stop thinking, "If we build it, they will buy it." *Page 59*

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Executive Briefing

While some vendors are introducing limited solutions for tracking and managing thousands of PCs, IS shops must wait until next year for more comprehensive solutions that manage desktop systems across the enterprise. *Page 1*

Cost justifying that new system is not easy, particularly using traditional ROI approaches, but some creative companies, such as JC Penney, Conoco and S. C. Johnson, have found a way to do it in leaps and bounds. Their key to success: nontraditional techniques for demonstrating information technology investment returns, such as buy-in from top management, application portfolios and user interview forms. *Page 79*

Vendors at GroupWare '94 say software agent technology will help users overburdened with electronic information, including too much E-mail. But users and analysts agree that users themselves are a big part of the problem, and they must change their practices. *Page 1*

With an eye toward doing things right, Federal Express, Bank of Montreal and 19 other Fortune 100 companies recently received the results of a "best practices" benchmarking study in which processes used by their respective IS organizations were compared in areas such as human resources planning and value delivery. *Page 28*

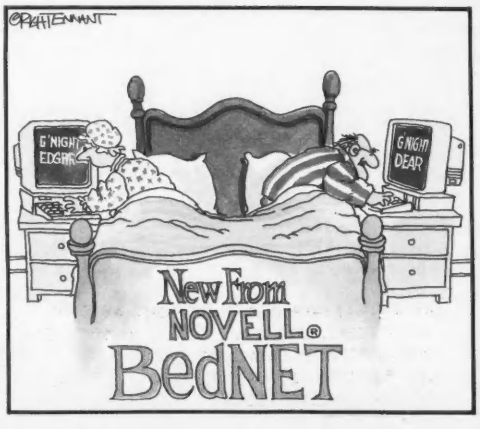
Although analysts lauded Computer Associates last week for its statement of direction on its ASK Group products, several ASK customers continue to question CA's ability to maintain Ingres' technical integrity. *Page 6*

Coping with staff personalities could cause IS managers' stress levels to rise. According to experts, anxiety comes from people, rather than actual task work; therefore, it's in everyone's best interest to ward off clashes before they occur. *Page 105*

In a downsizing move, Northrop Grumman's Commercial Aircraft Division is shifting its mainframe applications to run on Unix servers, relational databases and a combination of custom and packaged applications. *Page 51*

The revival of big-iron sales will largely be confined to this year, according to analysts. While the backlash against quick migration to client/server remains, much of the surge is credited to pent-up demand. *Page 63*

The 5th Wave *by* Rich Tennant



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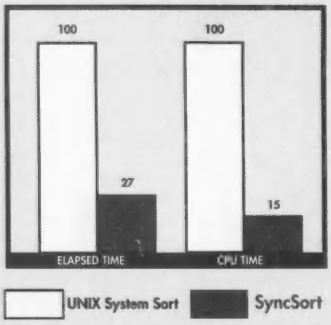

FUNCTIONS

	UNIX System Sort	SyncSort
RECORDS FORMATS		
Fixed length binary	NO	**YES**
Variable length binary	NO	**YES**
ASCII Text	YES	**YES**
RECORD PROCESSING		
Selection	NO	**YES**
Reformatting	NO	**YES**
Summarization	NO	**YES**
Grouping	NO	**YES**
COLLATING SEQUENCES		
Standard ASCII	YES	**YES**
EBCDIC	NO	**YES**
User Defined	NO	**YES**
Multi-byte	NO	**YES**

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The UNIX System Sort

UNIX

Price, functions keep subnotebooks subpar

By Michael Fitzgerald

Is the subnotebook market about to subside? Sobered vendors are taking a Jackson Pollack approach to this seemingly promising market by throwing their various designs at the customer canvas to see what sticks.

Users say they have yet to see something they would call art and are spending their information systems dollars elsewhere. The trend has vendors rethinking their strategies.

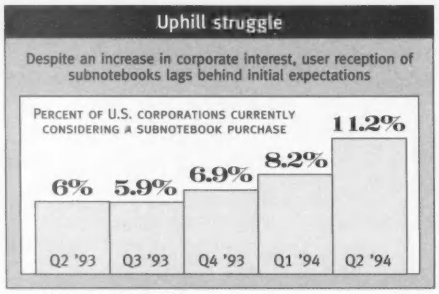
"[We're all] getting blasted in the subnotebook market," said an official at one notebook maker, who asked not to be named. "We'll make our budgets, but we're not going to meet our long-term expectations for this market. The overall market segment is not as large as we thought."

Can't get no satisfaction

The trouble with subnotebooks, users say, is they are underpowered, ergonomically challenging and overpriced. Subnotebooks weigh less than notebooks, a key benefit for users, but typically use smaller keyboards and screens and offer less storage and RAM than a notebook. They also have external floppy drives.

Users pan subnotebooks for their shortcomings, not their concept. In fact, users say subnotebooks are a step in the right direction because what they really want are lighter and slightly smaller yet full-powered notebooks.

"People want light weight and small size, but [subnotebooks] haven't been functional enough," said Victor E. Mutnick, corporate vice president at New York Life Insurance Co. Not only are the screens smaller, but because most color subnotebooks use passive-matrix color, the brightness level is not good enough, he said. On the flip side, models with good screens, such as Toshiba America Information Systems, Inc.'s active-matrix color Porteges , are too expensive, he said.



Source: Techtel Corp., Emeryville, Calif.

As a result of these complaints, notebooks may get smaller without losing significant features.

A case in point is NEC Technologies, Inc.'s Versa S, a notebook with a keyboard that is 98% full-size and a 9½-in. screen that tips the scales at a subnotebook-like 4.2 pounds.

Similarly, AST Research, Inc. will today announce its Ascentia 500S subnotebook. The 500S weighs only 4½ pounds but has a 95% keyboard and a full-size, 9½-in. passive-matrix color screen. While it will hold up to a 340M-byte hard drive and has local bus video, its processor is a relatively slow 33-MHz I486SX.

"We don't think [the subnotebook market] is dead at all, but we believe it has much different requirements than what we've seen so far," said Bret Berg, brand manager at AST. Berg said the nearly full-size keyboard and full-size screen should address user requirements.

Similarly, Dell Computer Corp. has backed off plans to ship a subnotebook this summer but will ship one by the end of January, said John Medica, Dell's vice president of portable products. Medica said Dell has shifted its design focus toward "a user-centric approach, rather than focusing on miniaturization."

A move to larger sizes pleased users.

"Keyboard size is important," said Tom Balzarini, PC coordinator at Associated Grocers, Inc. in Seattle. He added that "just the general durability level [of subnotebooks] worries me; the smaller they get, the scarier they get."

Power happy

But higher-end subnotebooks are the bright spots in the market. Vendor sources say their higher-powered subnotebooks, particularly those with color screens, are selling fairly well.

However, monochrome subnotebooks seem to be a source of inventory distress. In tacit acknowledgment of this, the IBM PC Co., Compaq Computer Corp. and Toshiba have recently made huge price cuts. IBM's base model ThinkPad 500 now sells for $799, while Compaq's base model Contura Aero is $999. Toshiba's Portege T3400 sells for $1,299.

Mike McGuire, an analyst at Dataquest, Inc., downplayed the low sales for subnotebooks, saying first-generation products are often rethought.

Partners target Unix management

By Kim S. Nash

Two years after vowing to build client/server systems management products, Sybase, Inc. and Tivoli Systems, Inc. plan to disclose today a set of tools that aims to bring mainframe-caliber monitoring to Unix servers, according to sources close to Sybase.

Code-named Tanglewood, the product suite is based on the Tivoli Management Environment (TME), a set of graphical programs designed to track and troubleshoot network, hardware and software activity.

Informix Software, Inc. recently announced plans to integrate its products with Tivoli's framework, and Oracle is building adapters to link its management tools to Tivoli's.

Integrating Sybase's SQL Server database and related add-ons with TME would give users a more coherent view of events on SQL Server and the non-Sybase products that affect database performance.

As distinctions blur between different vendors' core database features, "a common way to manage them all is becoming more and more important to users," said Herb Edelstein, an analyst at Euclid Associates in Potomac, Md.

Specifically, Sybase will unveil a shell that sits atop TME. The shell would let SQL Server administrators perform console management, capacity planning, network monitoring and other tasks, a Sybase insider said.

A Sybase spokeswoman confirmed that an announcement is planned for today but declined to give details. A spokesman for Austin, Texas-based Tivoli also declined to comment.

The Sybase/Tivoli team faces competition on a couple of fronts. Computer Associates International, Inc. last week announced plans to integrate its recently acquired Ingres database with CA-Unicenter, an overarching management facility. Oracle Corp. recently sketched out its plans to tie Oracle 7 to Hewlett-Packard Co.'s OpenView.

Tanglewood clinches Brewers Retail, Inc.'s decision to buy Tivoli, said Pompi Malik, information systems director at the beer distributor in Mississauga, Ontario.

"We were very concerned that systems management ... was not being addressed by Sybase, but [now] we're seeing some action," Malik said.

Still, users will not gain every systems management nicety found in the mainframe world.

For example, the concept of chargeback would be a useful mainframe carryover, noted Randy Corbett, a project engineer at Rockwell International Corp.'s Space Division in Downey, Calif. As it stands now, administrators have no standard way to monitor usage in a client/server setup, whether or not they bill end-user departments for server time, he said.

Tanglewood was built to support the System 10 release of Sybase's SQL Server. Still unclear, however, is whether Sybase will retrofit the suite to support previous versions of SQL Server, including Release 4.92, which is what most Sybase users currently run.

Volume shipments are expected by the end of the year. Pricing was not available.

Per-user pricing relies on honor system. See page 63.

Client/server tools lacking

By Melinda-Carol Ballou

As corporate developers move beyond the pilot stage for client/server applications and seek to create more transaction-intensive, complex programs, they are looking for tools that offer high-transaction data management, improved security and greater performance.

A number of vendors are targeting these needs with new releases of existing products, but some industry analysts questioned if the upgrades will sufficiently fill the bill for corporations seeking more sophisticated development tools.

No clear leader

Vendors ranging from Seer, Inc. to traditional computer-aided software engineering vendors such as Texas Instruments, Inc. have attempted to fill the gap, but no vendor has emerged as a clear leader. Bachman Information Systems, Inc. recently announced its Ellipse product, and new vendors on the scene such as Forte Software, Inc. will announce high-end tools this fall.

Market leader Powersoft Corp. is expected next month to release PowerBuilder 4.0, featuring multiplatform support, data pipeline support and connections to additional transaction processing monitors, including Novell, Inc.'s Tuxedo and AT&T Global Information Solutions' Top End with Tangent International, Inc.

The company plans to address high-end user requirements via a new, three-tiered architecture with transaction-processing monitor middleware and remote procedure call mechanisms. These will reside between clients and servers to manage transaction-intensive requirements, said beta sources briefed by Powersoft.

"One of the ways they intend to scale up is through 'power-buddy' alliances: For repository use they'll partner with LBMS; for application component distribution and [transaction management], they will use [transaction processing] monitors, which is in effect what [people have] been doing on mainframes for years," said Donald A. DePalma, an analyst at Forrester Research, Inc., a Cambridge, Mass., consulting firm.

Powersoft must adequately test PowerBuilder with the other products to ensure they work well together, he added.

Also expected later this fall is Microsoft Corp.'s Visual Basic 4.0, which is expected to facilitate development of Object Linking and Embedding 2.0 applications.

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SOM opens door to real world

Object software development is in ferment, and a sizable fraction of this activity is due to the breakthroughs represented by IBM's System Object Model (SOM).

SOM and Distributed System Object Model (DSOM) are likely to appear in more and more technologies being considered by IS managers. SOM and DSOM underlie CORBA, a set of specifications that amount to a de facto standard. Object request brokers, the crucial method-dispatch engines for distributed objects, are being created in compliance with the CORBA standard, making it easier for businesses to plunge into object systems.

I would go so far as to say the example of SOM is spurring Microsoft and Digital to generate specifications for Microsoft's Common Object Model, which allows SOM-style interfacing and language neutrality for Windows objects.

"SOM sort of beat everybody else to the punch," notes Paul Harmon, editor of the monthly newsletter, "Object-Oriented Strategies" in San Francisco.

The Meta View

SOM-style interfacing and language neutrality could appear in Windows objects.

Charles Babcock

SOM circumnavigates two object-oriented barrier reefs. It overcomes the inability of objects written in different languages to communicate with each other, including cases where both are written in C++ (they remained tongue-tied if the versions of C++ came from different vendors). It also frees object-oriented systems from the hobbling need to recompile both class libraries and the application with which they are to run each time a change is made in a library. This need imposes a heavy burden on any system that might undergo frequent changes and defeats one of the gains of object-oriented systems — rapid adaptability.

"With C++, a good deal of the information about the object being accessed gets compiled or 'hard-wired' into the application," says Frank Campagnoni, senior technologist on the staff of Cliff Reeves, director of object technology products at IBM in Austin, Texas. Any change to an object requires the changed library, all derived class libraries *and the application* to be recompiled.

Under SOM, this information remains strictly associated with the object. The information is calculated dynamically at runtime, when the appropriate class libraries are initialized and compiled. Thus, an object that models a business product can change often, and the changes get incorporated into each run of the system.

SOM might have addressed these goals through a clumsy, code-encrusted translator or other add-on software piece, but instead, it paved the way to split off a convention of the operating system world and build it into a compact clearinghouse for object communications.

Operating systems have a way to handle procedure calls, regardless of what language they're coming from, that amounts to an efficient, lowest-common-denominator linking convention. In a similar vein, SOM handles object messages with a linking convention that remains language-independent. A CORBA-compliant object request broker incorporates this linking convention as a small piece of assembler code that is specific to an operating system, Campagnoni says.

The resulting difference in object handling is similar to the difference between a static network and a dynamic one. A static network must be shut down, reanalyzed and reconfigured each time a PC is added to it. A dynamic network runs continuously and searches for new information, recognizing when a new PC has been added.

Thanks to the pioneering work of Ira Forman (the Metaclass Maven) and others at IBM, SOM represents a move to a simpler, higher level of abstraction for objects, which allows them to better match up with objects in the real world. And getting closer to the real world remains what software development is all about.

Babcock is *Computerworld*'s technical editor. His MCI Mail address is 575-2737.

Merger aftermath

Reaction split on CA's plan for ASK products

By Thomas Hoffman and Kim S. Nash

When Computer Associates International, Inc. last week released a set of white papers on its strategic directions for the recently acquired ASK Group, Inc. product suite, reaction from analysts and users was decidedly split.

Analysts lauded CA for its strategic vision with technologically revered products such as CA-Ingres and CA-OpenRoad. They said CA had salvaged a chest of gems from a sinking vessel and is sincere in its efforts to add luster to this bounty.

Users, however, continued to voice skepticism about CA's ability and intent to maintain the technical integrity of the products. Some ASK users said they fear CA will do little to enhance their products and will milk the installed base for maintenance revenue. Industry observers claim CA did just that upon its acquisition of Cullinet Software, Inc. and its IDMS database.

Slight slip

Activity surrounding Computer Associates' takeover of The ASK Group has delayed projected release dates for some key ASK database products

	ASK's promise	CA's new promise
OpenRoad tools for Microsoft's Windows NT, Windows	Late May	Before year's end
Openingres 1.1 database for Windows NT and NetWare 4.1	Last month	Early 1995

"People in the user groups are a little bit fidgety right now, waiting to see CA deliver," said Frank Pellegrino, director of MIS at Public Broadcast System in Alexandria, Va., and an officer of the North American Ingres Users Association.

Reading between the lines

In CA's defense, the vendor has not discontinued any ASK product development or support. And CA executives assert that the software giant's intentions to further Ingres and ASK product development are indeed honorable.

> **"CA is being left to pick up the pieces and make sure the product comes out, so I think ASK and Ingres customers are really going to benefit."**
> —Aaron Goldberg, Computer Intelligence/InfoCorp

"Reading between the lines of CA's white papers, these are not maintenance releases CA has planned. They're planning to integrate ASK technologies into [their] broad product set and into the CA '90s architecture," said Peter Kastner, a vice president at Aberdeen Group in Boston.

Besides, CA did not acquire ASK for its residual maintenance revenue, analysts said. "CA wants to be a major player in the client/server market, so their intent with Ingres is not to drum up maintenance revenues like they did with Cullinet's IDMS. This is a strategic acquisition," said Shaku Atre, president of Atre, Inc., a consultancy in Rye, N.Y.

For example, CA-OpenRoad, an object-oriented, repository-based application development tool, is in beta testing at more than a dozen customer sites under Microsoft Corp.'s Windows NT operating system. It is also being ported to all major versions of Unix, including those from Hewlett-Packard Co., Sun Microsystems, Inc. and IBM.

Not the end of the road

Although ASK failed to deliver a Windows NT version of OpenRoad by last May as promised, CA's plan to ship a complete package by year's end is better than alternative scenarios, analysts contend.

"ASK didn't have the financial viability to continue to invest in the product," said Aaron Goldberg, executive vice president of Computer Intelligence/InfoCorp in Santa Clara, Calif.

"CA is being left to pick up the pieces and make sure the product comes out, so I think ASK and Ingres customers are really going to benefit," he added.

Still, long delays could lose CA some customers, including Modisette Associates, Inc., an independent software provider — and Ingres loyalist — in Houston.

The firm looked to OpenRoad as a means to build applications once, then easily port them to various platforms, said Chuck O'Leary, a Modisette vice president. "I have a group of young [programmers] here who are itching to get projects done and know they can do it in C or some other tool, which we're seriously considering," O'Leary said. He said he will give CA three months to make progress before deciding what to do.

Corrections

Due to a reporting error, Digital Equipment Corp.'s Alpha AXP was described as a 64-bit system in the July 18 issue. It is a 32-bit system.

Wayne Kernochan is an analyst at Aberdeen Group in Boston, not Forrester Research, Inc. in Cambridge, Mass., as reported in the July 11 issue.

It was incorrectly reported in the July 25 issue that Ontario Hydro of Toronto was located in Hydro-Quebec.

Due to a production error, a credit was omitted from a photo of IBM Chief Executive Officer Louis V. Gerstner on page 101 in the Aug. 8 issue. The photo was from Luc Novovitch/Gamma Liaison.

WORKING TOGETHER
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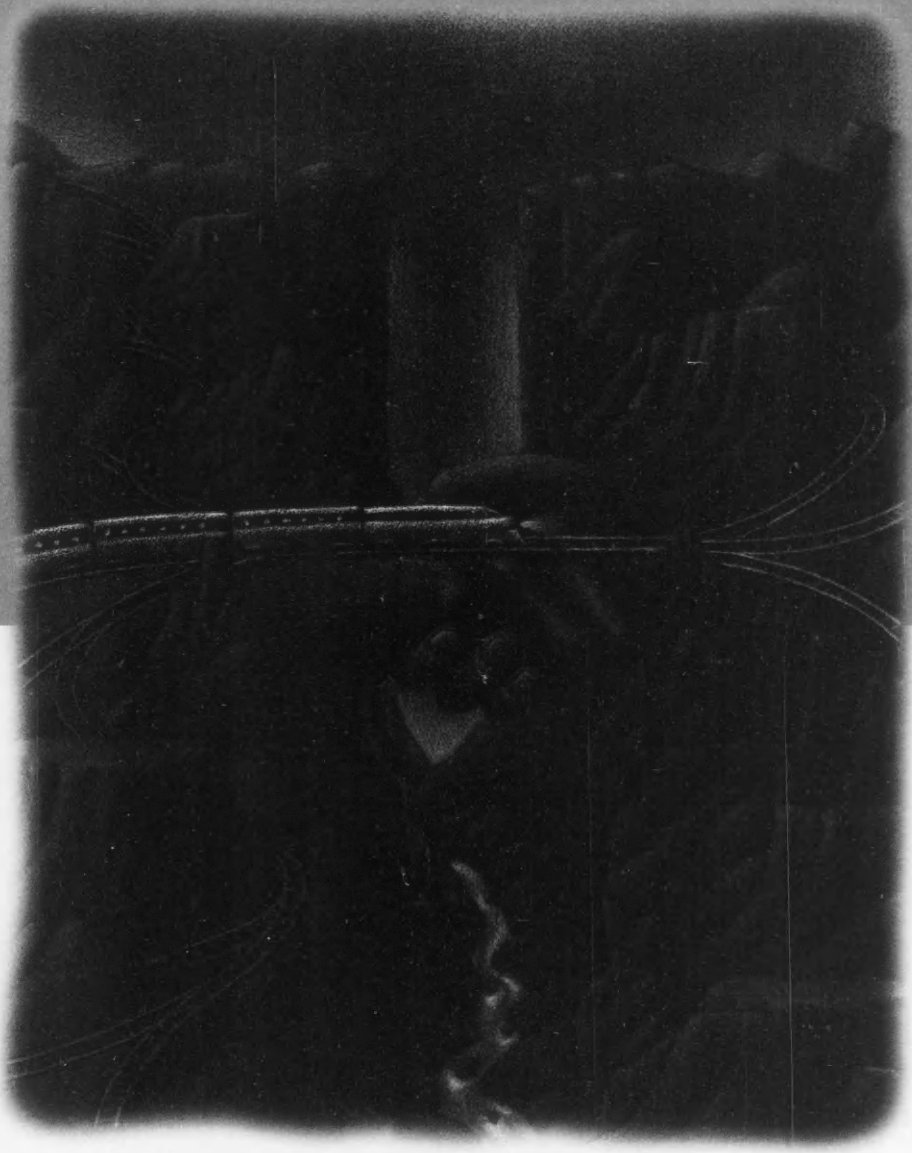

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News Shorts

Novell gets new chairman

Continuing his withdrawal from active leadership at **Novell, Inc.**, founder Ray Noorda last week stepped down as chairman of the board. The position went to Robert J. Frankenberg, who took over from Noorda as president and chief executive officer of Novell in April. Noorda said he would continue as an active board member. Frankenberg was formerly vice president and general manager of the Personal Information Products Group at Hewlett-Packard Co.

Lotus pulls plug on Improv

Further pruning back its desktop applications development efforts, **Lotus Development Corp.** last week said it is pulling the plug on its barely 2-year-old Improv spreadsheet. Lotus said the decision was based in part on recent efforts to channel development energies into applications areas where the company can distinguish itself. Although Lotus would not divulge how many copies of Improv have shipped, a spokesman said 150,000 copies were sold during its first year on the market.

Security alert issued to SGI users

The Computer Emergency Response Team (CERT) at Carnegie Mellon University in Pittsburgh on Friday issued an Internet alert about a security vulnerability in the help system and print manager in **Silicon Graphics, Inc.**'s Irix operating system, Versions 5.1.x and 5.2. The flaw enables users to get unauthorized root access if they can log into an account on the system or get physical access to the system console. A software patch is available from the company, and more information is available from CERT by electronic mail at cert@cert.org or by voice at (412) 268-7090.

Invent a new computer

A ruling late last month from the U.S. Court of Appeals for the Federal Circuit in Washington may pave the way for patenting inventions that can be implemented in either hardware or software. The decision apparently overturns a U.S. Patent Office policy that denies patents for inventions that can be implemented in software. The basis of the decision is that once a software program is loaded into the memory of a general-purpose computer, the computer can be viewed as a new machine eligible for patent protection.

Digital refreshes VAX line

In its most significant VAX upgrades in two years, **Digital Equipment Corp.** increased price/performance an average of 60% across its VAX line. It also simplified the product lineup by reducing the 4000 family from three to two systems, the MicroVAX 3100 from four to three and replaced the 7000 Model 600 with the 700. Digital also announced the OpenVMS Management Station, which enables users to manage one or more OpenVMS clusters from a Windows-based PC.

United Airlines shifts to Unix platform

United Airlines has standardized on **Informix Software, Inc.** databases for an enterprisewide re-engineering effort that aims to move several key applications off IBM mainframes, Informix said last week. United, which is the largest airline in the world, plans to overhaul customer relations, flight operations, crew management and other systems for an unnamed Unix platform.

SHORT TAKES **Legent Corp.** Chief Executive Officer John Burton plans to step down early next year when his CEO contract expires.... **Park City Group** and **Taco Bell Corp.** announced plans to team up to develop a retail automation system that will eventually be installed in 3,200 stores.

IBM reorganization

Gerstner to staff: Don't relax

By Rosemary Cafasso

IBM Chairman Louis V. Gerstner last week gave an electronic pep talk to the troops, urging staffers to guard against complacency in the wake of the company's improving financial performance. In particular, he sought to drive home the point that much hard work lies ahead.

"There is the temptation to sit back and start humming 'Happy Days Are Here Again,' " Gerstner said in an internal memo issued via IBM's company network late last week. "Rather than celebrate, we have to commit to focus intensely on two overall tasks: eliminating unnecessary cost, duplication and bureaucracy; and implementing our business strategies."

Bob Djurdjevic, a veteran IBM watcher and president of Annex Research, Inc. in Phoenix, said he recalled a similar Gerstner memo issued in the summer of 1993 that was less positive and stressed that "executives didn't lose focus on where the ball was."

In last week's memo, however, a kinder, gentler Gerstner stressed there was "much to be proud of in our performance."

Going once, going twice...

IBM plans to auction off $45 million worth of artwork formerly housed in the company's art gallery at 590 Madison Ave. in New York. The move is part of Chairman Louis Gerstner's charter to keep the company focused on what it does best — technology — and to shed assets not pertinent to that focus.

No resting on laurels

Still, Gerstner made it equally clear that IBM staffers must focus on constructive change. He referred to an internal video he issued earlier this month that said IBM employees must make a commitment to three items: to win in the marketplace, to change and to one another. Gerstner stressed these three directives are "not an elective process."

"No more focusing on our opponents down the hall.... No more endless meetings about the need to change and then going back to business as usual," Gerstner said in the memo.

Compaq, TI to team on fast Ethernet

By Jaikumar Vijayan

■ In what analysts called an important step in the company's bid to make its products play across the enterprise, Compaq Computer Corp. plans to partner with Texas Instruments, Inc. in the area of "fast" Ethernet technology, according to sources.

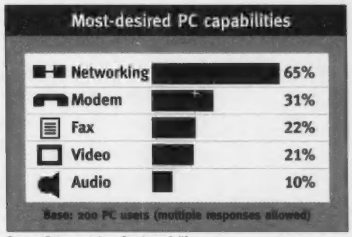
The announcement, expected later this month, will involve the development and manufacture of 100M bit/sec. Ethernet products such as adapter cards and possibly switches, according to sources briefed by the company. The first product — a 100Base-T adapter card with a 32-bit Peripheral Component Interconnect interface — is expected sometime next year, the sources said.

Compaq is initially expected to offer 100M bit/sec. Ethernet connectivity in the form of adapter cards that can be inserted into Ethernet ports on network-ready boxes. It will also work with TI to integrate network chips on the motherboard itself, the sources said. Both Compaq and TI declined to comment.

For network administrators cramped by growing server bandwidth bottleneck problems, the impending partnership could result in server products with increased communications bandwidth and higher performance. The 100M bit/sec. technology gives servers more network bandwidth, thus easing bottlenecks. A 100M bit/sec. link to a server, whether it is a Fiber Distributed Data Interface or a fast Ethernet connection, is regarded by many as a solution for server congestion.

Users are looking forward to 100M bit/sec. technology, although most said they do not have an immediate need for it.

"Applications like videoconferencing and real-time audio are going to drive the need for greater bandwidth," said Mathew Ivaliotes, network administrator at the University of Illinois at Urbana-Champaign. The university is trying to use multiprocessor servers as database and application servers and could need more bandwidth eventually, but it has little need for 100M bit/sec. support right now, he said.



Source: Dataquest, Inc., San Jose, Calif.

Domino effect

Other users said they liked the idea of a 100Base-T Ethernet connection but had mixed feelings about an on-board chip solution.

"It's nice to have [network] functionality built into the motherboard, but if that functionality goes south, you can have big problems," said Marshall Fernholz, network control manager at the American Medical Association in Chicago. Fernholz said that while network adapter cards give users the option of pulling out the card if something goes wrong, board-level functionality would mean pulling out the entire motherboard.

"Multimedia applications are already pushing the envelope on 10M bit/sec. technology," so there could be a growing demand for higher-performance technologies, said Peter Kastner, president of Aberdeen Group in Boston.

Compaq's planned alliance with TI comes at a time when there are indications that higher-speed, Intel Corp. Pentium-based servers could optimally utilize the increased network bandwidth offered by 100Base-T technology. A study by Infonetics Research, Inc. in San Jose, Calif., revealed that despite relatively high investment costs in terms of staff training and management software, higher-speed servers — in the Pentium class, for instance — would likely need 100M bit/sec. technology to fully exploit processor and throughput capabilities.

The study also revealed that fast Ethernet may be overkill for 486-based servers where the server, not the medium, is the point of traffic. The study said Novell, Inc. NetWare 486 servers have an inherent bandwidth limitation of about 20M bit/sec. that renders inconsequential any gains from 100Base-T.

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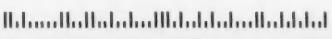

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*UnixWare test results from March 28, 1994 for a single Pentium™ processor Compaq® Proliant™ 2000 Model 5/66-4200A running OracleWare™ System-UnixWare Edition. Results $433 tpsB based on 184.54 tpsB. Other results detailed in TPC-B Benchmark Report.

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Vendors back away from License Server API

By William Brandel

Gone missing.

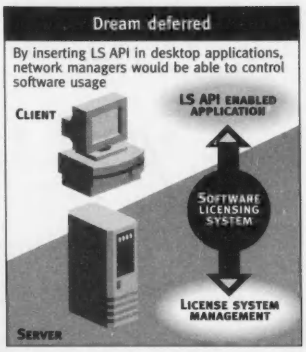
That is the fate of a much-touted technology called License Server Application Programmer Interface (LS API), which was supposed to facilitate software licensing compliance at user sites.

Due to hit the market later this year, LS API has now hit the skids. Representatives from major software vendors, who just a few months ago said they were in general agreement over LS API, now say they disagree on its merits.

The integration of LS API into desktop applications and operating systems would have made it dramatically easier for users to comply with disparate software licensing schemes.

"As users, we definitely need these tools and technology," said Ki Wilson, microcomputer manager at Stone Container Corp. in Chicago. "This would save us support costs and resources. Obviously it is not in the vendors' interest to give us the tools that would enable us to discover that we don't need as much software as we are buying."

Indeed, all major vendors say they are either postponing or completely scotching any plans to include the technology in their software products.



At Lotus Development Corp. in Cambridge, Mass., a spokesman said the company has dropped all development efforts to place LS API in its desktop products. And Novell, Inc. officials last week confirmed that the company has pulled the beta version of NetWare LS, the NetWare community's long-awaited license management product that supported LS API, out of field testing.

Officials from WordPerfect, the Novell Applications Group, said last week that the company did not know if, when, how or whether it would deploy the LS API in its desktop applications.

Microsoft Corp., one of the original architects of LS API, said it now has no plans to place the technology in any of its products.

What went wrong

Sources close to LS API development at vendor sites said agreement broke down over LS API for a number of reasons. First, the vendors never agreed on the management specification. At the same time, Microsoft and Novell were preparing to deliver competing systems management products based on different technologies.

Microsoft's technology is drawn from Digital Equipment Corp., while Novell's technology is Unix-based, drawn from Gradient Technologies, Inc., based in Marlboro, Mass.

In addition, LS API no longer has an industry institution championing it. Microsoft and the Software Publishers Association have largely abandoned the specification after playing major roles in gaining vendor support for the API.

"For users, this leaves 'situation normal,' all messed up," said Priscilla Tate, executive director at Technology Managers Forum, Inc. Tate was a director at the Microcomputer Managers Association, which initiated the LS API specification when it published its licensing white paper in October 1991.

"We knew different vendors had different distribution strategies then," Tate said. "There are still as many ways to license software as there are software publishers. We're still paying more for software, and vendors still don't want to pursue the cost of metering."

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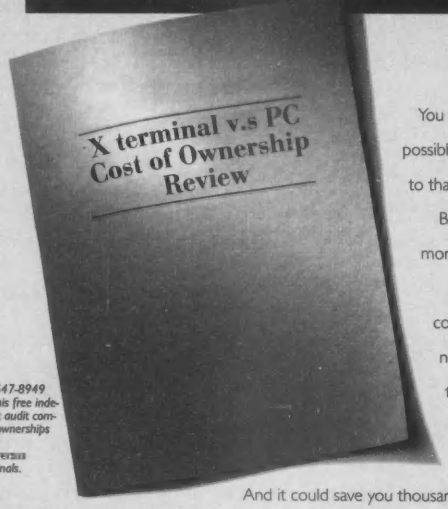

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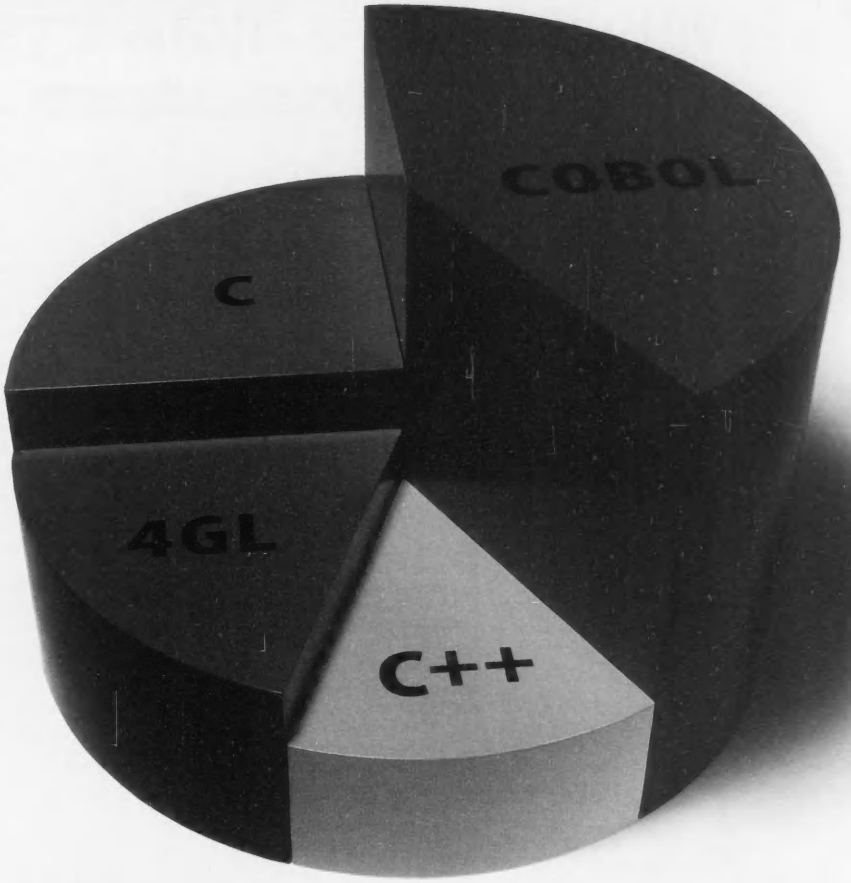

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Client/server security is industry slacker

By Gary H. Anthes
HILTON HEAD ISLAND, S.C.

Concerns about security in client/server computing ranked just behind worries about getting a good tee time for 75 attendees at an information security manager's symposium here last week.

Users from a broad array of corporations and government agencies attending the MIS Training Institute's conference said they are cautiously making their way to client/server in part because of security that is years behind what is available in the glass house.

"It has slowed us down," said a security manager at a large insurance company. "But you can only hold your end users back so long."

Indeed, it is impossible to keep up with users, others said. "People are building applications on the fly, and no one is checking on them. Auditors don't look at them," said Wendall A. Reimer, information systems and data processing security supervisor at 3M Co. "It's a huge issue."

Reimer said 3M is attempting to deal with that by establishing an architecture in which security is tied to the corporate data that feeds the distributed applications rather than to the applications themselves.

He added that 3M's move to client/server has increased the security work load in departments without offsetting savings centrally. "We've done 30 to 40 client/server applications and nothing has gone away from the mainframe," Reimer said.

Gary S. Lynch, vice president of information security and risk management at The Chase Manhattan Bank NA in New York, said client/server security solutions tend to be "tactical and platform-specific." Vendors have a long way to go before mainframe-strength security is available, he added.

But Lynch noted that Chase, another bank and a manufacturing firm are experimenting with a new concept that may give them added clout in getting vendors to respond to their demands for greater security.

Lynch said the three companies are attempting to convince two major software vendors that specific security weaknesses in their products may carry legal liability for the vendors if users suffer security breaches as a result of the deficiencies. For example, in one "compliance recommendation," Chase wants a major product to include a systemwide, nondefeatable time-out feature that would lock up an application after a certain period of inactivity.

Lynch said the new groupware products also present special security challenges because they have their own security features that end users can implement in different ways, making central control very difficult. "Groupware scares me because we introduce it as a small pilot, but pretty soon it catches on and we have enterpriseware," he said.

Kenneth J. Cutler, a vice president at the Information Security Institute in Framingham, Mass., said companies moving to client/server often pay a great deal of attention to availability and neglect other aspects of security such as password management.

"They tend to get security-conscious after they get burned," he said. "Shooting yourself in the foot is an incredible attention-getter."

Code breaking and entering

Computer security experts say users moving to client/server often pay attention to system uptime but neglect other security factors. What often can't be trusted in a client/server environment:

IDENTITY OF THE INDIVIDUAL
Who is really on the end of the line?

IDENTITY OF CONNECTING DEVICE
Is this really the server you think it is?

CORE OPERATING SYSTEMS
How secure is the DOS kernel, NetWare OS, Unix OS?

HARDWARE
Are devices protected physically?

Source: The Chase Manhattan Bank NA, New York

Securing the mixed bag

Axent Technologies in Rockville, Md., last week launched a set of security management products that will target customers with a mixed bag of client/server systems and no single method to safeguard them.

"I think it's an afterthought," said Chet Geschickter, vice president of research at Hurwitz Consulting Group, Inc. in Watertown, Mass., of security in client/server environments. "With all the seduction with development tools and the general tone of informality, security has been overlooked."

Axent, a division of Raxco, Inc., said its OmniGuard product set can operate from a single point of control, such as a Unix-based workstation, and rely on agents designed for other platforms to report back information on the different operating environments.

The computer technology group at Mobil Administrative Services Co. has tested the OmniGuard products for an environment that includes Novell, Inc.'s NetWare, Digital Equipment Corp.'s OpenVMS and "Unix in several flavors," said Paul Styrvoky, a senior auditor. So far, his staff has been impressed with OmniGuard's consistency.

The software is scheduled for shipment in October. It can be licensed as a full suite or by individual modules, which start at $1,995. Agents will sell for $395.

—Rosemary Cafasso

Start-up builds Clipper chip substitute

By Gary H. Anthes
GLENWOOD, MD.

When Vice President Al Gore recently called on the industry to develop a software-based alternative to the controversial Clipper encryption chip, Clipper opponents hailed the move. But some observers wondered if software developers would rise to the challenge.

As it turns out, tiny Trusted Information Systems, Inc. (TIS), based here, had already quietly developed a software alternative. Company executives claim it could overcome many of the objections to Clipper (see story at right).

Demand may be high

The TIS system, temporarily dubbed Key Escrow Encryption System (KEES), is not yet commercially available. Industry observers expect, however, the system will find uses outside government walls and inside corporate ones once it becomes a product.

The encryption system would allow a company to decode its encrypted files and messages using keys stored by a corporate agent — even when an end user has lost the original encryption key.

"If you are a large company and you protect your E-mail or files on a widespread basis and someone loses the key, there is not much you can do," said TIS President Stephen T. Walker. "This software is an insurance policy. If something goes wrong, you can get it back."

TIS President Stephen T. Walker: *KEES 'is an insurance policy'*

Unlike the Clipper chip, the TIS system is based entirely in software and can be used with any encryption algorithm, Walker said. Clipper uses a secret algorithm called "Skipjack," developed by the National Security Agency (NSA).

"TIS has accepted the challenge put out by the White House," said Lynn McNulty, associate director for computer security at the National Institute of Standards and Technology (NIST). "The NSA-developed chips are one solution. If anybody's got a way to do it differently, we're willing to listen."

McNulty and other officials from NIST and NSA have seen a demonstration of the TIS system, but McNulty cautioned it has not been evaluated in any detail yet. However, "Steve [Walker] has put together what appears on the surface to be a very viable solution," he said.

McNulty said no one knows how much demand there is outside the federal government for key-escrow encryption. "But some of the major corporations are increasingly becoming nervous about the ability of employees to encrypt data stored on desktops," he said.

KEES could be key

As the first alternative to the controversial Clipper chip, the Key Escrow Encryption System (KEES) is heading for some fierce scrutiny.

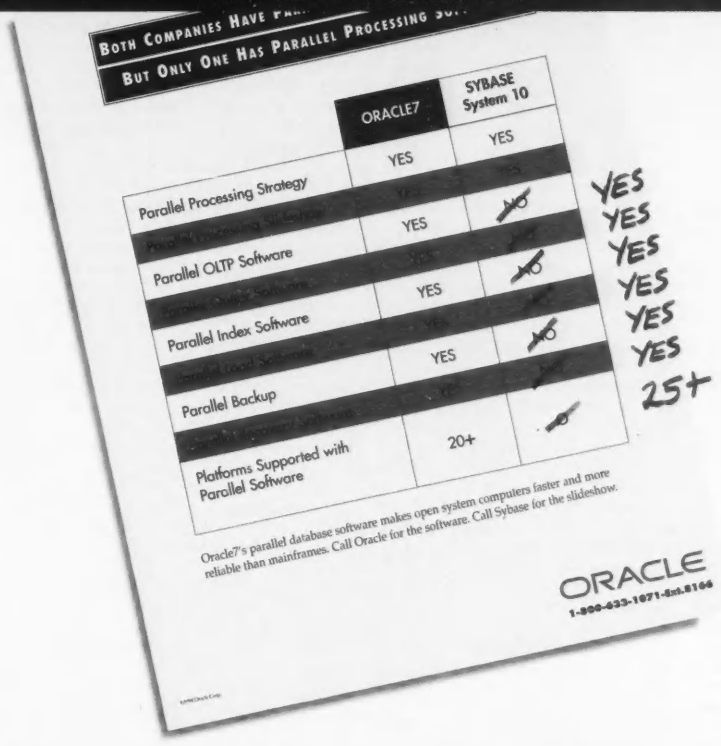
Clipper is intended for the encryption of voice and low-speed data communications. It will use two encryption/decryption keys held in escrow by separate government agencies. Armed with a court order, law enforcement agencies would be able to retrieve the escrowed keys to wiretap encrypted communications between suspected criminals.

But users and vendors vociferously object to the government's key-escrow initiative, saying it will lead to privacy violations.

At a conceptual level, KEES works like the key-escrow features in the Clipper chip. That is, the keys used to encrypt information can be stored in a secure place by a corporate or government agent and retrieved later to decode files or messages encrypted by employees or suspected criminals.

However, KEES uses public key cryptography, with the private keys kept in escrow and the public keys available to both the sender and receiver. This allows the receiver to verify the integrity of the message, authenticate the sender and verify the integrity of the "law-enforcement access field" — the information needed by law enforcers to recover the escrowed keys. *— Gary H. Anthes*

"All This Talk About Parallel And They Still Can't Get It Straight."



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Ability to manage desktop assets to gain ground in '95

By Elisabeth Horwitt

■ The desktop asset management industry is every bit as fragmented as other network management niches — and just as sluggish to agree on standards.

The downside for users is that they must either write their own scripts to manage their mix of PC assets or wait for the leading network and systems management companies to get there.

Fortunately for users, a number of product introductions — from the fall through next year — promise to extend the management domain of leading platforms across a broad range of PC systems. They include the following:

• Hewlett-Packard Co. plans in 1995 to announce a suite of applications under its OpenView network management platform for managing PC software assets and configurations. The suite will include distributed computer administration, configuration management and software distribution. It will be linked to other applications via HP's data repository architecture, Meta-Schema, which was announced last week.

The application will manage Microsoft Corp. operating systems, probably via the Hermes system management software, as well as a range of Unix systems, HP said.

• IBM's NetView for OS/2, slated for release this fall, will include an asset management module that automatically collects configuration information from the following systems: Novell, Inc.'s NetWare, IBM's LAN Server and OS/2, and Macintosh and Windows machines, an IBM spokesman said.

• Tivoli Systems, Inc., OpenVision and Computer Associates International, Inc. have said they will port their software configuration and systems management products to Windows NT by 1995, allowing users to manage NT and Unix from the same console [CW, July 25].

• Microsoft's Systems Management Server (SMS), due in October, can inventory hardware and software as well as distribute software to DOS, Windows, OS/2 and Macintosh clients. It can also troubleshoot problems across a variety of networks and offers a help facility allowing LAN administrators to walk remote users through hardware and software problems.

SMS has its own SQL-based database that serves as a repository holding configuration and installation information on PCs spread across different networks.

SMS will feed into HP's OpenView and IBM's NetView/6000 at an undisclosed date.

• Frye Computer Systems, Inc. will hook its popular Software Update and Distribution System (SUDS) to HP's OpenView shortly and provide broader management of Unix systems later this year. Frye began shipping in April a distributed wide-area network version of SUDS, which is said to propagate updates across geographically-distributed servers.

• The Desktop Management Task Force's Desktop Management Interface (DMI) could potentially offer a consistent way for management consoles to collect information across a broad range of desktop hardware and software systems. Unfortunately, few leading desktop vendors have committed to support DMI in any specific time frame.

Senior editor Ed Scannell contributed to this article.

DEC extends All-In-1

By Lynda Radosevich and Mary Brandel

In an attempt to hold on to customers and provide a migration path to client/server computing, Digital Equipment Corp. last week quietly began shipping All-In-1 3.1.

The revision permits users to run their All-In-1 applications intact on Alpha AXP systems and is key to a big chunk of the installed base. However, Digital is expected to continue to lose customers to popular LAN messaging systems.

For the nearly 5 million users of All-In-1, Digital's aging, minicomputer-based messaging and office automation software, the question is where to go from here.

Up to 80% of the All-In-1 installed base is looking to update the office system, according to analysts. Many are moving to LAN systems using Microsoft Corp.'s Mail or Lotus Development Corp.'s CC:Mail for messaging.

"We're going off on our own strictly because we want a PC-based system," said Doug Welker, manager of advanced technology and architecture at Westinghouse Savannah River Co., a large All-In-1 site in Aiken, S.C. Westinghouse is migrating to Mail, Welker said.

Hardware help

The Alpha AXP support allows users to replace VAX hardware without disrupting the software. Such a scenario will be attractive to 20% to 25% of the installed base, estimated David Whitten, an analyst at Gartner Group, Inc. The advantage is improved performance and lower cost of ownership.

For instance, for the VAX 6410, the five-year cost of ownership is $134.56 per user; whereas for the AXP, it is $5.20. The savings are due to reduced floor space, power consumption and maintenance costs, said Steve Martin, a Digital marketing manager.

Features in All-In-1 3.1 include a redesigned mail server that is X.400 P2-compliant so it can interoperate with other X.400 mail systems and enhancements in systems management and terminal user functions such as print preview.

PC tracking

CONTINUED FROM PAGE 1

install and specifically configure operating systems and applications that take best advantage of a PC's current hardware assets across multiple environments.

"IS does not view their solution as having IBM here and Microsoft there. They view it as an IS problem that needs a specific IS solution and not a bunch of vendor-specific solutions," said Jerry Schneider, president emeritus of the D.C. Capitol Users Group and head of Schneider Associates in Burke, Va.

While vendors have been slow to come out with standards for tracking and controlling PC assets, the platform vendors are planning to announce proprietary solutions next year that will manage a broad range of PC operating system environments (see story above).

Method of distribution

Vendors have provided part of the answer with products such as IBM's Distribution Manager and Configuration, Installation and Distribution (CID) packages, which allow managers to automatically distribute a software update or new package to multiple PCs.

"Software distribution products like CID are critical to us. I have taken my install time for OS/2, a NetWare Requester and [IBM's] Communications Manager from several hours down to one hour per workstation," said Doug Strock, a LAN administrator at Dow Corning Corp. in Midland, Mich.

Unfortunately, such a cookie-cutter approach to distribution does not work in the common corporate scenario, where PCs differ widely in terms of hardware and network driver configurations as well as type and version of operating system and applications installed, analysts and users said.

The way to solve this problem is to hook the distribution package to an asset manager that tracks and stores up-to-date information on each PC's hardware, software, networking and operating system configurations. This would enable, for example, an IS manager to tell the system: "Distribute Microsoft Word Version 6.0 to all those PCs that have Version 5.1 and the memory to handle 6.0."

An automated, centralized software management system "is a requirement for a company with more than 100 users," said Ted Vegvari, a network design specialist in Torrance, Calif., who works with a number of major corporations. In addition to eliminating a hefty amount of LAN administration grunt work, such systems can help IS departments implement some degree of consistency across PC configurations.

Third-party vendors such as Frye Computer Systems, Inc. in Boston and Brightwork Development, Inc. in Tinton Falls, N.J., provide proprietary packages that perform all of the above, primarily at the departmental LAN level.

What is still missing is the tie-in to an enterprise management system, which would provide IS managers with the ability to perform a range of management applications across multiple environments, said Bill Kirwin, an analyst at Gartner Group in Stamford, Conn.

Fortunately, vendors are promising to provide that. Martin Marietta Corp., for example, looks forward to using HP's OpenView as a single window into LAN and internetworking installations via Simple Network Management Protocol (SNMP). It also plans to manage Microsoft desktop installations via Microsoft's Systems Management Server (SMS) — also known as Hermes — and have SMS feed desktop information to OpenView, said Frank Belland, senior communications consultant at the Atlanta manufacturer.

Such Unix-based management platforms as OpenView and IBM's NetView/6000 have the scalability and range of management applications to enable "the guy who sits at one console in the data center to manage all LANs plus the SNA network plus the internetwork," down to the desktop level, Kirwin added.

Support central

In addition to putting more control of PC configurations in the hands of IS, such products would potentially reduce total computer operations head count as corporations move from distributed departmental LANs, each with its own administrator, to a more centralized LAN support approach.

Hermes could give Microsoft some added leverage against its competitors on the desktop because it promises to work hand-in-glove with the Registry that is built in Windows 4.0, code-named Chicago. The Registry provides Hermes with highly specific information about the hardware and software on an individual PC.

"We like Chicago for all the implications it has for LAN and network management things like distributing applications. You can suck that data up through Hermes," said Warren Smith, a certified public accountant in the auditing department at Pacific Bell in San Ramon, Calif.

Lost ground

Efforts to come up with standardized ways to manage multivendor Unix configurations through the Common Open Software Environment (COSE) consortium lost momentum when COSE initiatives were folded into the Open Software Foundation and X/Open Co. organizations.

HP spins out OpenView 'Tornado'

By Steve Moore
ORLANDO, FLA.

■ Twisting the tails of its foes in the escalating network and systems management conflict, Hewlett-Packard Co. last week spun out a distributed management initiative code-named the Tornado Project.

But the HP announcements regarding this next generation of the OpenView network management platform were not substantive enough to worry competitors or persuade fence-sitting users to race to OpenView, analysts said.

"Since the next-generation version of OpenView is unlikely to appear before mid-1995, the Tornado Project is a marketing exercise to make customers and independent software vendors aware of HP's transition plans," said Tom Willmott, a vice president at Aberdeen Group in Boston.

While users at the OpenView Forum held here last week praised the company's overall strategy and its expanding roster of partnerships with other vendors, they clamored for product specifics and timetables that HP executives declined to provide.

Users looking for support

"I think HP has a good basic platform, and now that they're getting Cisco and all these other people to write products to it, I think it'll become the dominant platform in the network management environment," said Bill Bryan, network manager at El Paso Natural Gas Co. in Midland, Texas.

Bryan and other users pointedly noted, however, that HP must establish new beachheads by supporting additional protocols, such as Novell, Inc.'s IPX, and additional operating system platforms such as Microsoft Corp.'s Windows NT. HP executives said IPX and NT support will emerge next year as part of the Tornado Project.

Among the features HP promised in the Tornado Project are the following:

- A common data repository that can be shared by multiple network and systems management applications. It will be based on HP's newly announced OpenView Meta-Schema, which is a specification for a consistent method developers can use to store information used by their applications.
- Distribution of user interface processes so multiple operators in different sites can access the same OpenView displays.
- Support for Version 2 of the Simple Network Management Protocol (SNMP).

For Sudhir Rahman, a senior network engineer at DHL International in Singapore, SNMP Version 2 was good news. But he said that as his international network grows, he will need additional features such as support for the Japanese language in OpenView's user interface.

While applauding HP's promised OpenView enhancements, users asked for improvements to OpenView's network discovery and mapping features, its report generation capabilities, its support of leading relational database management systems and its ability to use SNMP Remote Network Monitoring (Rmon) data.

"I've been looking for something on the reporting side to make OpenView more friendly for upper management," Bryan said, noting that while promised enhancements to HP's NetMetrix products may do just that, he needs more time to evaluate those and other LAN analysis products.

"I'd like to have OpenView give me a complete picture of all my analyzer data and Rmon data," said Edgar Pimental, a network manager at Electronic Data Systems Corp. in Flint, Mich. "If I could integrate all that data into an object-oriented database and have OpenView access it with a nice user interface, that would be neat to see."

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Viasoft's VIA/Alliance helps decipher legacy code

By Melinda-Carol Ballou

"How do I get there from here?" is a daunting question for information systems departments pondering how to move millions of lines of legacy Cobol code to client/server computing.

Even the notion of changing system clocks for the year 2000 can be an alarming prospect.

"This is a big concern of ours," said Bob Wooten, a systems software engineer at Unum Life Insurance Co. in Portland, Maine. Wooten's organization needs a five-year lead time for some applications requiring the date change. "We need to figure out what [code] we have, what needs to be changed and how it affects other applications. A group within the company is checking out tools [to do that] right now."

So far, few tools exist to help companies detail and automate this process. But a new offering from Viasoft, Inc., dubbed VIA/Alliance, may be able to help Cobol and MVS software.

VIA/Alliance lets developers examine both source code and Job Control Language (JCL) to perform impact analyses on code.

Companies switching from traditional environments to client/server setups must be able to inventory code and understand the relationships between existing legacy applications, analysts said.

"It's critical for any [information technology] organization to know and understand what they have and where they are [in order] to include that in their plans for where they want to go. This will minimize the amount of new development they need to do and let them maximize reuse of existing applications," said Kevin Schick, an analyst at Gartner Group, Inc. in Stamford, Conn.

Yet code-impact analysis is one of the most time-consuming and error-prone tasks related to maintaining code, analysts said.

Mapping it out

VIA/Alliance's ability to provide access to JCL allows users to know which programs are being executed in which sequence and which sets of code are being used across systems. It essentially provides a road map for how legacy applications are put together — exactly the sort of information required for maintaining, re-engineering and/or reusing code.

VIA/Alliance offers a complete set of cross-reference supports that developers can use to create detailed reports on the existing applications. It also puts all the information into a DB/2 database, enabling developers to track their systems.

"This provides a baseline that most organizations don't have today," said Bill Ulrich, a consultant at Tactical Group, Inc. in Aptos, Calif. "I talk to companies all the time who are trying [figure out code relationships] by hand."

VIA/Alliance is integrated into Viasoft's Existing Systems Workbench and can be used in conjunction with Viasoft's other re-engineering tools. Prices start at $45,000. VIA/Alliance will be part of a Viasoft thrust next year into more mainstream, high-end client/server development, company officials said.

Lotus teams up with Intel

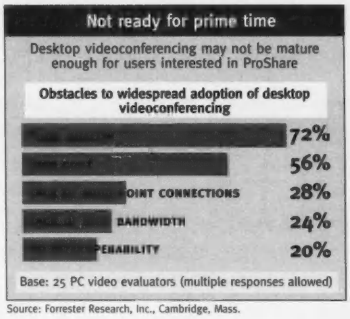
ProShare software will be integrated into Notes

By Lynda Radosevich

Lotus Development Corp. will integrate Intel Corp.'s ProShare desktop conferencing software into Notes, the two companies announced last week. The move should help Lotus fill a key hole in Notes, which lacks real-time conferencing, analysts said.

ProShare, conferencing software that shipped in January, permits two users connected over a dial-up line to work simultaneously on a shared whiteboard or the same electronic document. With the addition of Intel's ProShare video system and Integrated Services Digital Network (ISDN), it also lets users see one another on a video screen.

AT&T Corp. is working with Intel to integrate AT&T's data and desktop videoconferencing line. It is also working with Lotus to develop a public Notes network and may play a key communications provider role, Intel said.



Source: Forrester Research, Inc., Cambridge, Mass.

Due next year

Lotus said it will give ProShare a Notes interface by late next year. Lotus also will integrate ProShare into Notes so that the products have a common name and address book and the same modem setup. Users will also be able to launch a ProShare conference from within Notes.

David Harter, chief operating officer at Bermac Communications, Inc. in Dallas, said two potential benefits include being able to launch a conference from within Notes and using the Notes/ProShare combination to play video clips during a real-time meeting.

Lotus said the ProShare arrangement fits into its strategy for Video Notes, a server that will compress, store and manage memory-intensive video files in a separate server. Video Notes is slated for early 1995 delivery. It will store and manage saved copies of ProShare conferences and serve video images to users in a conference, according to Peter Klante, director of Notes Companion Products marketing.

Intel officials also said ProShare will support multiple users next year. ProShare costs $99 per user for a shared whiteboard, $299 for application sharing and $2,499 for the full video system. Large discounts are available if ProShare is purchased from an ISDN provider. Lotus said it expects its Notes/ProShare offering to be priced roughly the same.

Lotus releases SmarText 3.0. See page 54.

Team IS up at bat

CONTINUED FROM PAGE 1

computers at their sites and at service bureaus such as Ticketmaster Corp. will be well prepared for that task with software designed to handle weather-related game cancellations.

IS directors in both the American and National leagues had said they hoped player and management negotiators would avert the strike that began Friday. Players oppose a team salary cap proposed by team owners and used in other professional leagues such as the National Basketball Association. Owners claim that exorbitant compensation is threatening the existence of many teams.

Anticipating the walkout, which will bench many of their daily computing routines such as tabulating game results and player performance, baseball's IS shops were fast formulating game plans to focus on projects aimed at creating less costly and more productive operations. Baseball is full of old ball game IS processes — the Kansas City Royals still handle ticket sales manually — and modernization would help alleviate some of baseball's financial burden, IS chiefs said.

Change of plans

For the Minnesota Twins, that could mean picking up the pace on projects such as enhancing communication lines on an electronic ticketing system, said Sherry Rood, director of IS for the team.

Minnesota is the only major league team that sells tickets through electronic kiosks. IS had planned to wait until the baseball season ended before replacing the 9.6K bit/sec. data lines that connect its 30 kiosks in Minneapolis-area supermarkets to an IBM AS/400 with faster 56K bit/sec. lines.

The financial strain is especially severe for small-market teams such as the Pittsburgh Pirates. The team plans to use the strike time to continue evaluating a possible shift from its 486-based Novell, Inc. NetWare LAN system to a Microsoft Corp. Windows NT-based workflow environment. The NT system would use Lotus Development Corp.'s Notes groupware, electronic forms and Microsoft's SQL Server.

Boosting creativity

Sanjay Chakrabarty, IS director for the Pirates, said the team would use the new system to better integrate sales and marketing operations with ticketing procedures. This would aid the team's creativity in special promotional campaigns, he explained.

The Oakland Athletics were begrudgingly eyeing similar opportunities.

"Really, a strike hurts everybody in the community, especially the little guy whose business depends on the [local team]," said Ramon Sevilla, the Athletics' computer operations manager. But in Sevilla's IS shop, the silver lining in the strike cloud would be the opportunity to begin two major software upgrades to the team's Hewlett-Packard Co. HP 3000 minicomputer: replacing its TurboImage database with ImageSQL and replacing MPE/IX 4.0 with the recently released MPE/IX 5.0.

Down the coast in Anaheim, home to Oakland's interstate rival, the California Angels, IS thoughts were also turning to head starts on other projects.

Heavenly descent

The Angels are in the process of downsizing from an AS/400 to an IBM 486-based NetWare LAN. The team has already shifted ticketing operations off the AS/400 and will eventually move other functions, including tracking player injuries and player transactions, said Ron Moore, director of IS.

"We have a little more time to do some things we've been working on," he noted.

But while teams may have more time, the work stoppage could well mean they will not have more money, and that could squelch some of their best IS intentions, pointed out Jim Kline, the Baltimore Orioles director of computer services.

"Most organizations are going to try to limit expenditures because their income will be cut off at the knees," he said. "So you'll have the quandary of not having the funds to do what you [have the time] to do."

If Kline is able to get the funds to spread the Orioles' IS wings as he sees fit, he will embark on a project to upgrade the team's 386-based PC LAN to a 486 or Pentium level, he said.

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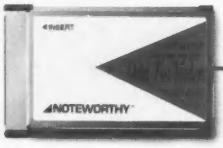

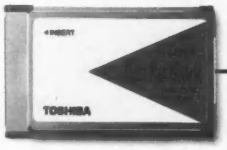

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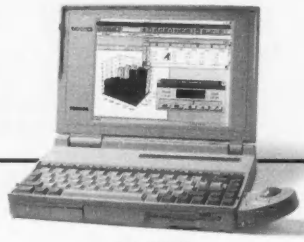

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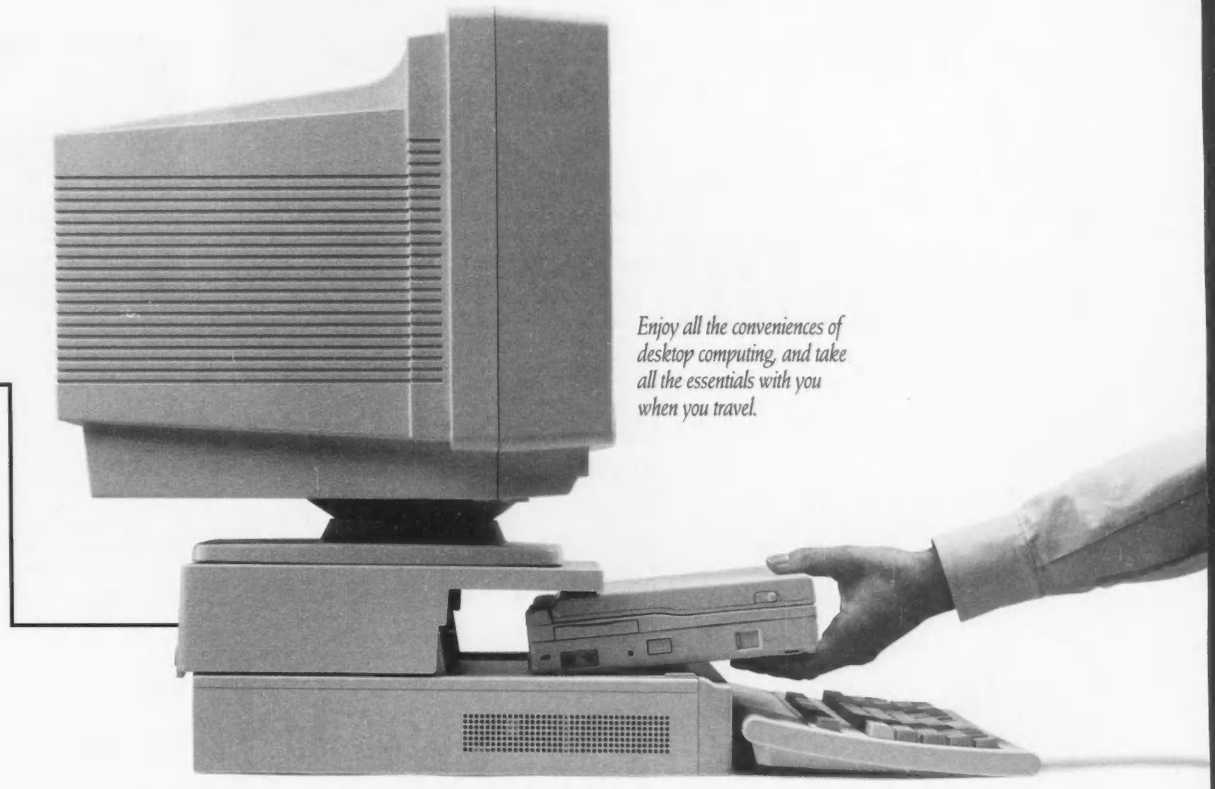

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Notebook availability woes open doors for Dell

By Michael Fitzgerald
and Jaikumar Vijayan
NEW YORK

Dell Computer Corp. could find itself benefiting from the troubles of others as it steps back into the notebook market and readies new desktops.

Information systems managers contacted about the recently shipped Latitude and Latitude XP [CW, Aug. 1] said they liked the notebooks.

"I'm impressed with [the products]," said Sarah Isley, team leader of Desktop Services at Burroughs Wellcome Co. in Research Triangle Park, N.C. She said the screen, weight and PowerBook-like keyboard layout were all pluses. The pharmaceutical firm has purchased four XPs already and is evaluating them as an alternative to desktop computers.

Isley and other users cited availability troubles at vendors such as IBM PC Co. and Compaq Computer Corp. as one factor in Dell's favor.

Dell executives said the company can meet demand for the new products, despite the woes of its larger brethren. If so, Dell could grab a foothold in the notebook market, despite its lengthy absence.

Dell has also adopted aggressive pricing for the new line. An active-matrix color Latitude XP with an Intel Corp. 33/100-MHz DX4 chip and a 524M-byte hard drive costs $5,099, for instance, or approximately $1,000 less than a high-end IBM ThinkPad 755C. Eric Harslem, Dell's product group senior vice president, said the company will be less aggressive in the future but wanted to reenter the market in an attention-getting way.

WILL VAN OVERBEEK

CEO Michael S. Dell *says life at Dell has been a lot more fun lately, as the company bounces back from last year's painful notebook debacle*

Dell is also trying to formulate new standards for notebook components. Michael S. Dell, chairman and chief executive officer, said the company is working with AST Research, Inc. to create standard docking station connectors, floppy drives and other components.

He also said company business plans call for notebooks to make up 20% to 25% of its overall sales. Dell declined to say how long he expected this to take.

Desktop strategy

Meanwhile, Dell is readying a new series of its OptiPlex desktops, to be announced Aug. 22. The products represent Dell's bid to streamline its brand strategy, said one analyst briefed on the products, who asked not to be named.

The OptiPlex line will feature enhanced Plug and Play capabilities, enhanced integrated drive electronics and memory management.

The highlight of Dell's planned desktop announcement will be a 90-MHz Pentium-based system with a 210M-byte hard disk and a 14-in. monitor, which will cost $2,799, sources said.

"Any company that sells a 90-MHz Pentium system for less than $3,000 is bound to attract the interest of corporate users," predicted Jennifer Munson, an analyst at WorkGroup Technologies, Inc. in Hampton, N.H.

The new family will offer models starting with a 33-MHz I486SX version and topping out with the Peripheral Component Interconnect bus-based 90-MHz version. An entry-level system will cost $1,400 for a 33-MHz 486SX processor with 4M bytes of memory, a 210M-byte hard disk and monitor.

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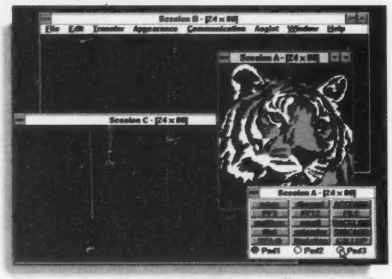

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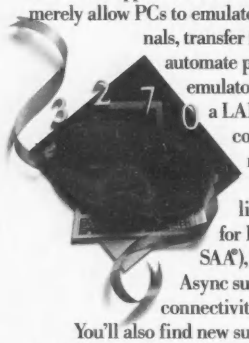

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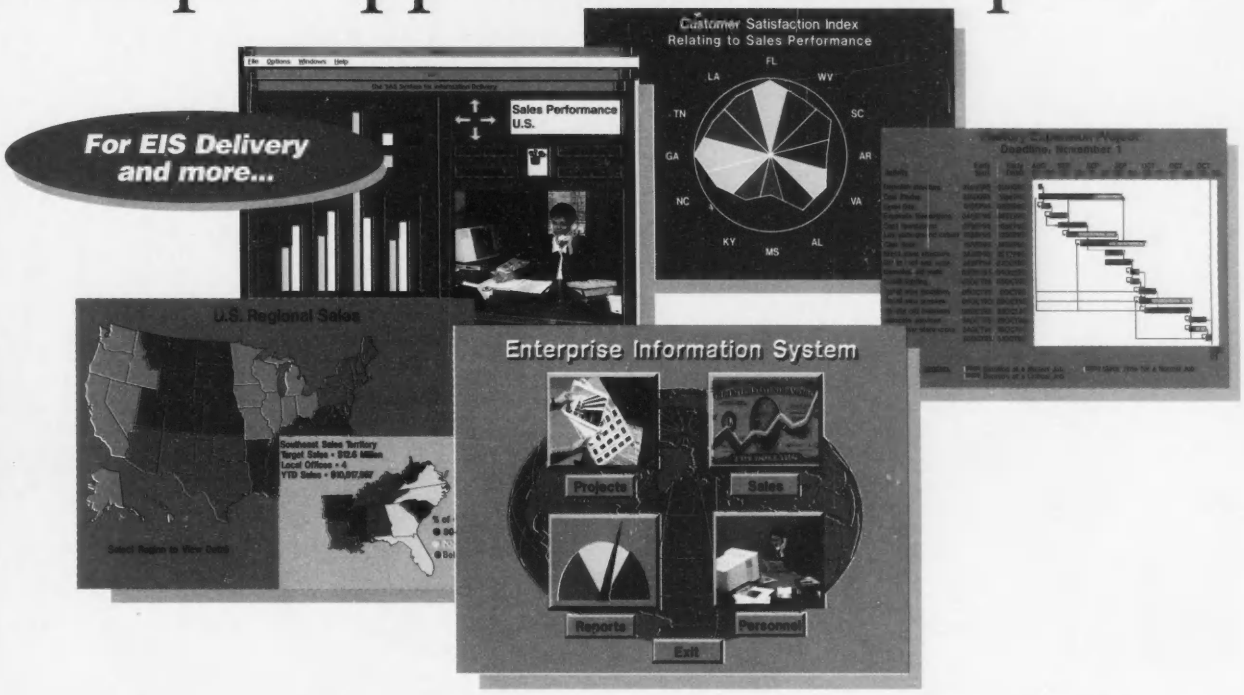

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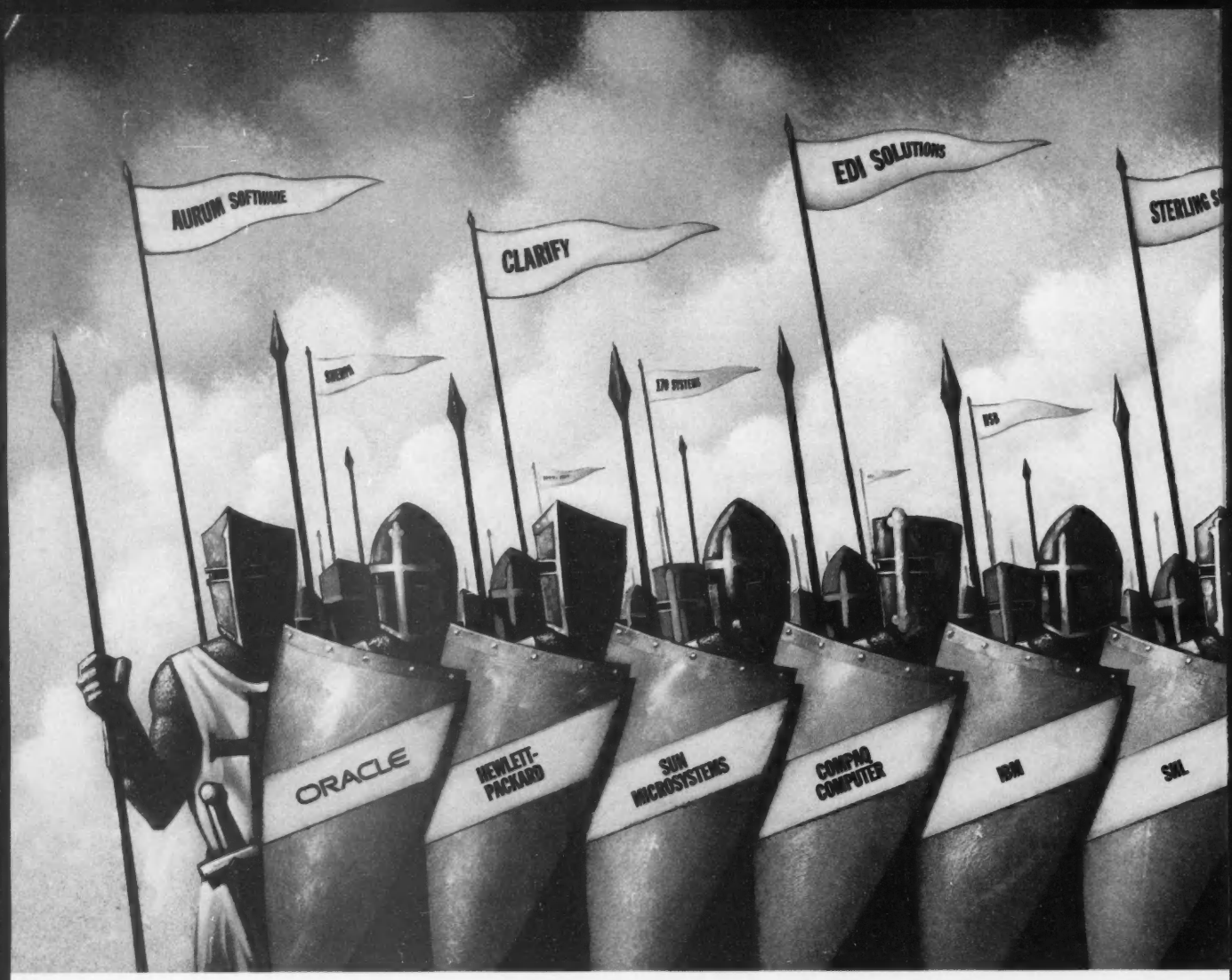

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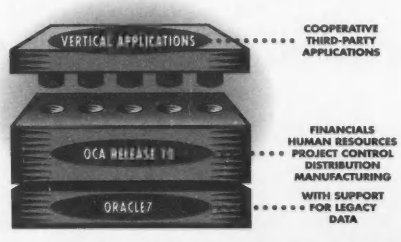

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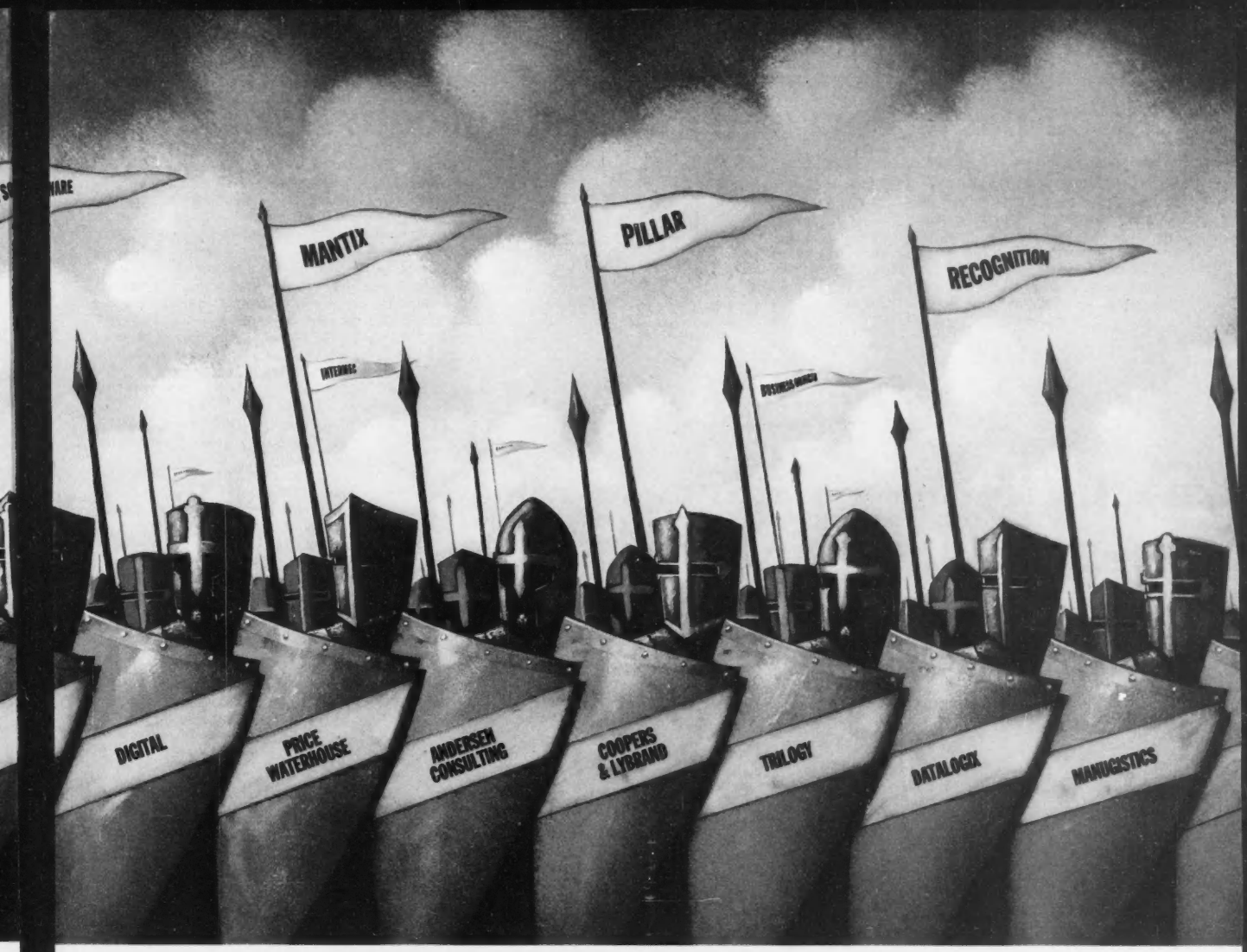

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Third-party service runs afoul of copyright laws

By Julia King

Legal experts are cautioning companies to closely scrutinize the fine print on software licenses in the wake of two court decisions that significantly broaden the definition of copyright infringement.

Specifically, attorneys said information systems managers should make sure all license agreements explicitly authorize system access by third parties such as consultants or outside service contractors.

Prompting the alarm was the bizarre outcome of lawsuits involving MAI Systems Corp., a financially beleaguered manufacturer of computer hardware and software in Irvine, Calif., and two independent service companies.

In suits brought by MAI, federal courts have ruled that the independents — Peak Computer, Inc. in Glendale, Calif., and Advanced Computer Services of Michigan, Inc. in Bloomfield Hills — copied MAI's proprietary operating system when technicians booted up computers in the course of on-site diagnostic testing. When customers' computers were turned on and software loaded into RAM, copies were created and copyright laws were violated, the court said. Moreover, the court concluded that licensing violations also occurred. Because MAI's licenses allowed customers to use its software only for internal information processing, any use of MAI systems by computer service companies was unlawful.

Third class

The current market for third-party computer service totals about $30 billion, according to trade association Independent Service Network International.

"It's one of those oddball cases that happens, and yet it has tremendous practical consequences out in the marketplace," said Ronald Katz, an attorney at New York law firm Coudert Brothers.

"It's like saying that if you hold a page of a book in front of a mirror, you're making a copy of it," he said. "It doesn't make any sense, but if I were an MIS manager, I'd make sure my licenses said I could designate agents to turn on my machines for the purpose of maintaining them."

Get it in writing

Last week, IS managers and software contract specialists said they were unaware of the court cases but that the implications were clear.

"We often have consultants work for us who certainly do need access," said Stan Radom, director of contracts and administration at Depository Trust Corp. in New York. "We automatically build in [to license agreements] that nonemployees or other agents can use [our] software."

As independents see it, the MAI cases boil down to an attempt to squeeze out third-party service providers. After all, "You have to be able to turn a machine on to fix it," noted Claudia Betzner, executive director of Independent Service Network International, an Atlanta-based association of about 200 independent service companies.

MAI, on the other hand, maintains it is a matter of protecting intellectual property and unfair competition.

"We spent a considerable amount of money to develop diagnostics embedded in customers' systems," MAI lawyer Eric Christensen said.

MAI does allow third parties to service its equipment but only after both the service company and user firm pay separate access and diagnostic fees to MAI and sign licensing agreements, Christensen said. He would not specify the amount of fees but said MAI has agreements with nine independent service companies.

MAI has about 7,000 active maintenance contracts on its machines; 3,000 to 7,000 MAI systems are maintained by third parties, he said.

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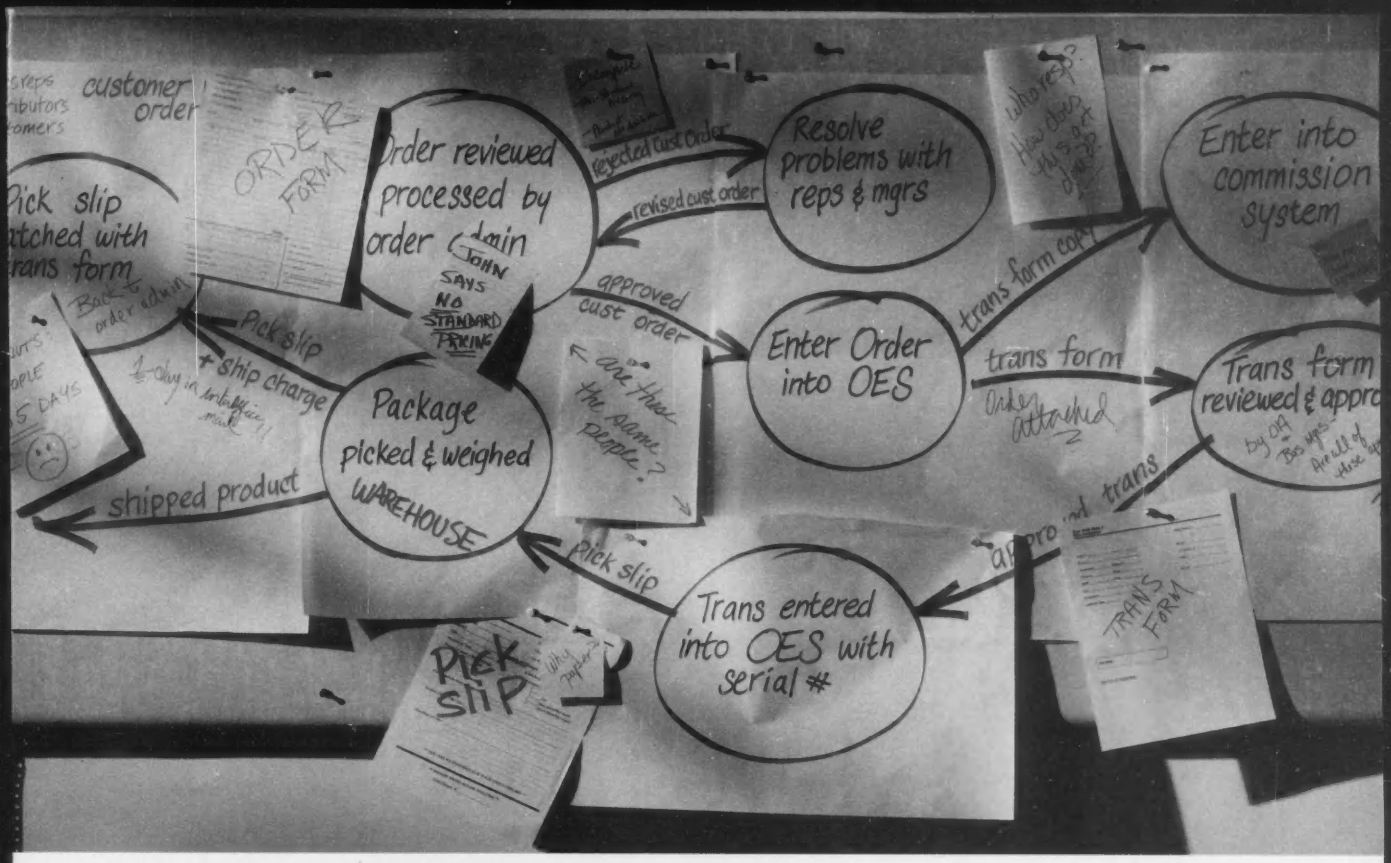

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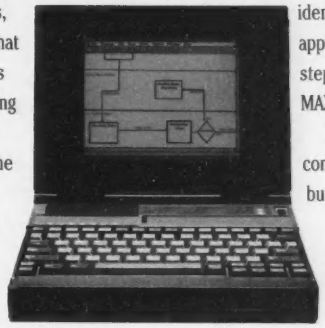

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FINANCIAL, WORKFLOW/IMAGE AND COLD SOLUTIONS

IBM study spurs IS reevaluation

By Thomas Hoffman

■ Like a growing number of Fortune 500 companies, Union Pacific Railroad has strived in recent years to align its information technology capabilities with its corporate business objectives.

But even though the Omaha-based rail carrier made solid progress melding its technical savvy with its corporate mission, the company's information technology division still needs to communicate more effectively with the business units it supports.

"Clear and constant communications are essential when you're going through the type of [business process] transformation we've been experiencing," said Joyce M. Wrenn, Union Pacific's vice president of information technology and chief information officer.

Union Pacific CIO *Joyce Wrenn says communication is essential*

This was just one of the dozens of findings that resulted from a value-based benchmarking initiative undertaken by 21 global corporations last year (see story at right). The study, conducted and audited by the IBM Consulting Group, compared the "best practices" of information systems organizational processes across multiple vertical industries, including financial services, insurance and manufacturing.

The results of the study underscore the need to improve the alignment of information technology with the overall business mission in most of the companies.

For some CIOs, the benchmarking confirmed their suspicions that some of their IS processes needed to be overhauled.

At Statoil, a Stavanger, Norway-based oil and gas distributor, the IS organization "had been very inward-looking and wasn't very customer-oriented," said Geir Petterson, a senior vice president responsible for corporate information technology.

Petterson said he got an earful about the weaknesses of Statoil's information technology services from corporate users prior to the benchmarking initiative. But the benchmarking results convinced him that Statoil's IS services needed improvement. "It was a confirmation of our gut feeling that we have a long way to go before we can consider ourselves satisfactory with services and customer orientation," Petterson said.

Indeed, the benchmarking results caused most participants to reevaluate their organization's IS operations and follow through on advice from their peers. "The biggest area we'd discovered we were behind in was the strategic management of our human resources," said Roger Boerner, vice president of life insurance systems at United Services Automobile Association (USAA) in San Antonio.

Going to night school

As USAA continues to explore client/server computing, the insurer has begun adding nightly seminars and courses on distributed processing "as a way of exposing [IS staffers] to skills that they will certainly need in the future," Boerner said.

For Sheleen Q. Fryer, the benchmarking exercise enabled her to immediately appraise the status of Blue Cross/Blue Shield of Illinois' IS operations.

"One of the guiding factors we used to supplement the benchmark consortium was an internal customer sampling," Fryer said. "We were basically told that one-third of our IS users were satisfied, a third were dissatisfied and a third were ambivalent."

So to better serve its users, Blue Cross/Blue Shield began tying user satisfaction in with IS staff compensation. "Having a good attitude and being a good listener doesn't cut it unless the deliverables are there," Fryer said.

Service key

Among the findings of IBM Consulting Group's 1993 Best Practices Benchmark Initiative were the following:

- Service is considered the primary focus by 55% of participants.
- Information technology is being used to achieve dramatic cost savings by 65%, while 35% consider information technology a strategic weapon to accelerate corporate directions.
- Companies with a technological model or high-level view of the enterprise realized a 30% greater value in increased productivity and profitability, cost savings and better decision-making.
- Participants with a corporatewide view of the importance of technology as well as senior management sponsorship are more satisfied with their technology investments and processes.

ISDN lures doctors

CONTINUED FROM PAGE 1

pharmacy. PHS is concerned about retaining doctors because the pressures associated with health care reform have hospitals across the country locked in fierce competition for them.

"What differentiates us from our competition is the quality of our physicians. The problem is keeping them once we get them," said PHS network manager Mel Lively. He said he believes PHS will live or die by its ability to acquire, process and make data available to its users — particularly physicians.

Working together

By connecting doctors to the PHS network and giving them free access to its databases, the hospital hopes to make them feel like part of the PHS family, which in turn gives PHS an advantage over its competition, Lively said.

Simultaneous with the ISDN rollout, PHS will bring on-line a network of Sun Microsystems, Inc. Unix-based workstations with built-in ISDN capabilities. Called the Practice Management Computer System, the network will handle doctors' administrative tasks such as billing and record keeping.

Increasingly, hospitals and physicians are banding together to cut costs while offering a broad range of services. As of last week, three of northern Texas' largest nonprofit hospitals — PHS, Baylor Health Care System and Methodist Hospitals of Dallas — were considering an alliance.

With roughly $500 million in business last year, PHS is the second largest health care provider in northern Texas, behind Baylor, also based here.

"We've entered an era of incredible restructuring, which affects not only IS but everything hospitals do on a daily basis," said Steven Heck, chief operating officer at First Consulting Group, a health care consultancy in Irving, Texas.

Alverson agreed. "If you want any longevity in IS, you have to closely align your IS strategy with your business strategy, and you have to be able to move and adapt as the market shifts," he said.

With ISDN, PHS is heading down a different path than other health care organizations such as Exeter Health Resources, Inc. in Exeter, N.H., Allegheny Hospital System in Pittsburgh and Philadelphia and Johns Hopkins University School of Medicine in Baltimore, all of which have begun implementing Asynchronous Transfer Mode (ATM) networks. Exeter is also looking into ISDN, but carrier coverage is insufficient for it to implement the technology now [CW, June 20].

As for PHS, "We believe ATM is mostly hype at this time and is far too expensive and immature for us to consider seriously," Lively said.

Stan Wolinski

PHS CIO Mike Alverson *(left) and network manager Mel Lively recruit doctors with better network services*

PHS recently completed its transition, begun in 1991, from a mainframe-based network to a client/server setup. Its four main locations in Dallas, along with more than a dozen medical clinics with over 5,000 employees, are linked via Ethernet over fiber cable in a collapsed-backbone configuration with redundant Cisco Systems, Inc. AGS+ routers.

Now PHS' 90-member IS department is charged with expanding the network to include hundreds of new connections. With an annual IS budget of roughly $12.5 million, these connections must be made as cost-effectively as possible.

The hospital currently has four T-1 connections to its major locations. Yet at $1,500 to $5,000 a pop, T-1 links to individual doctor's offices are out of the question, Lively said. Frame relay was also deemed cost-prohibitive at $380 per month.

With providers such as Pacific Bell Corp. offering ISDN coverage for as low as $15 per month, ISDN emerged as the technology of choice.

PHS made repeated requests to Southwestern Bell Corp. for ISDN coverage, which finally paid off. The telecommunications provider has installed ISDN switches that will service Dallas, Houston and San Antonio starting Oct. 1.

After an installation charge of $500 for each of the 10 Basic Rate Interface (BRI) links, Bell will charge PHS $55 per month for each line. Lively said he expects that rate will eventually drop to as low as $15 a month. The 10 BRI links will be combined in a $1,500 Primary Rate Interface (PRI) ISDN line to PHS.

On the PHS side, Lively is installing a $44,000 Cisco 7000 router with a Multi-Channel Interface Processor card that supports two PRI connections. Cisco 2500 routers will be installed at the client end for less than $2,000.

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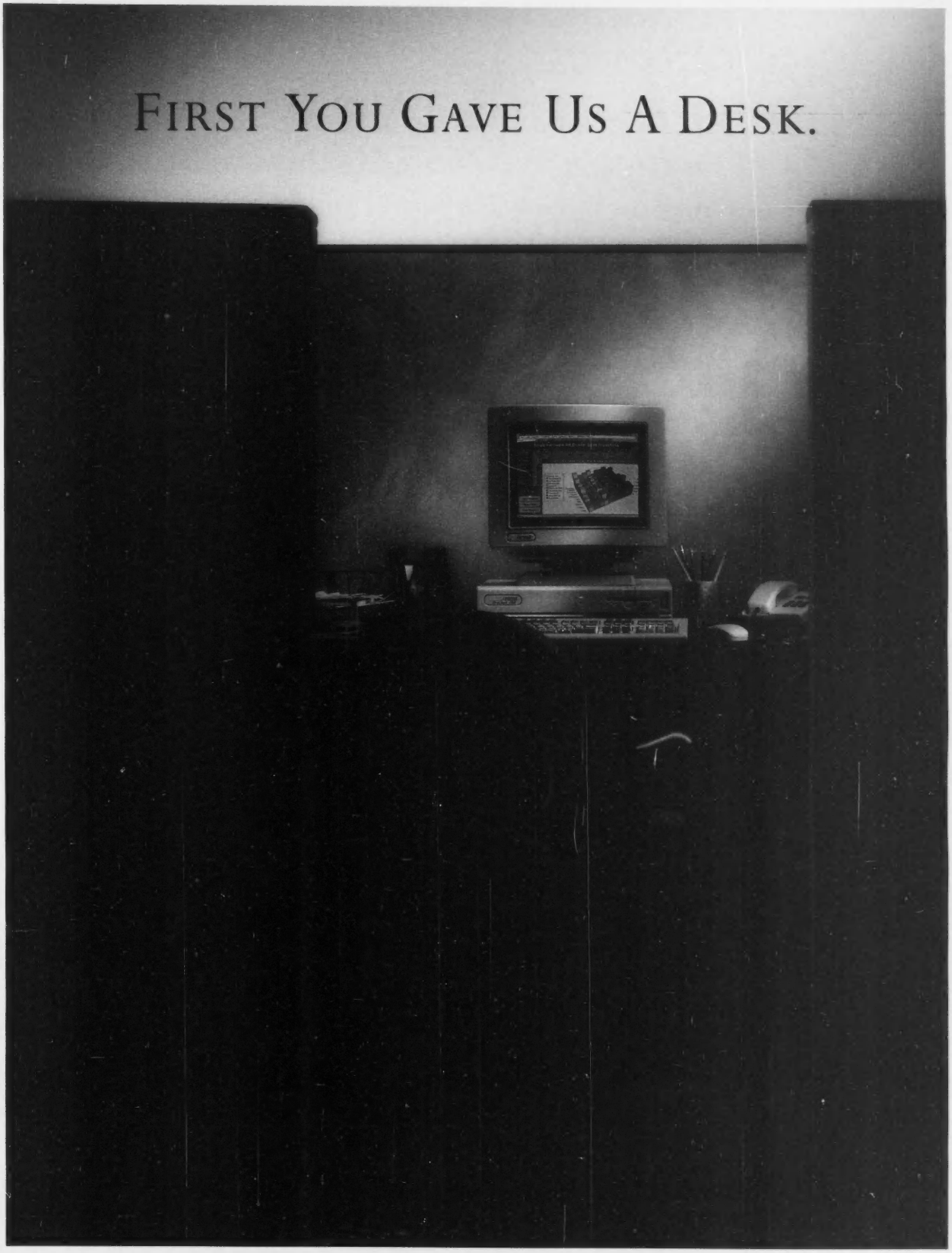

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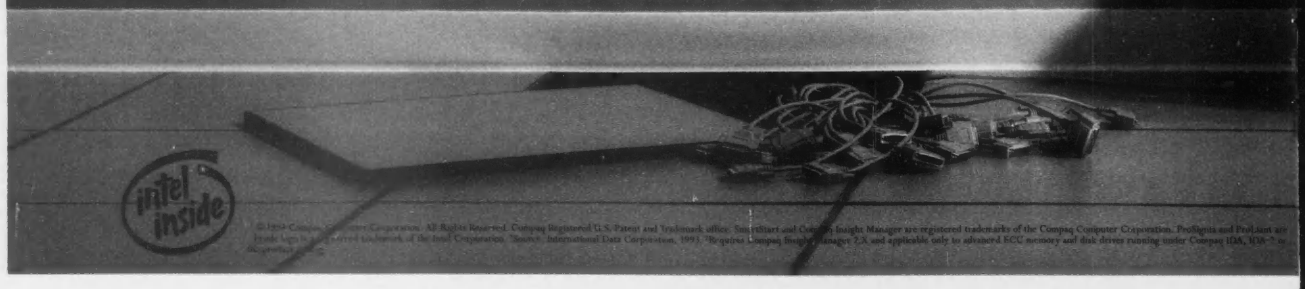

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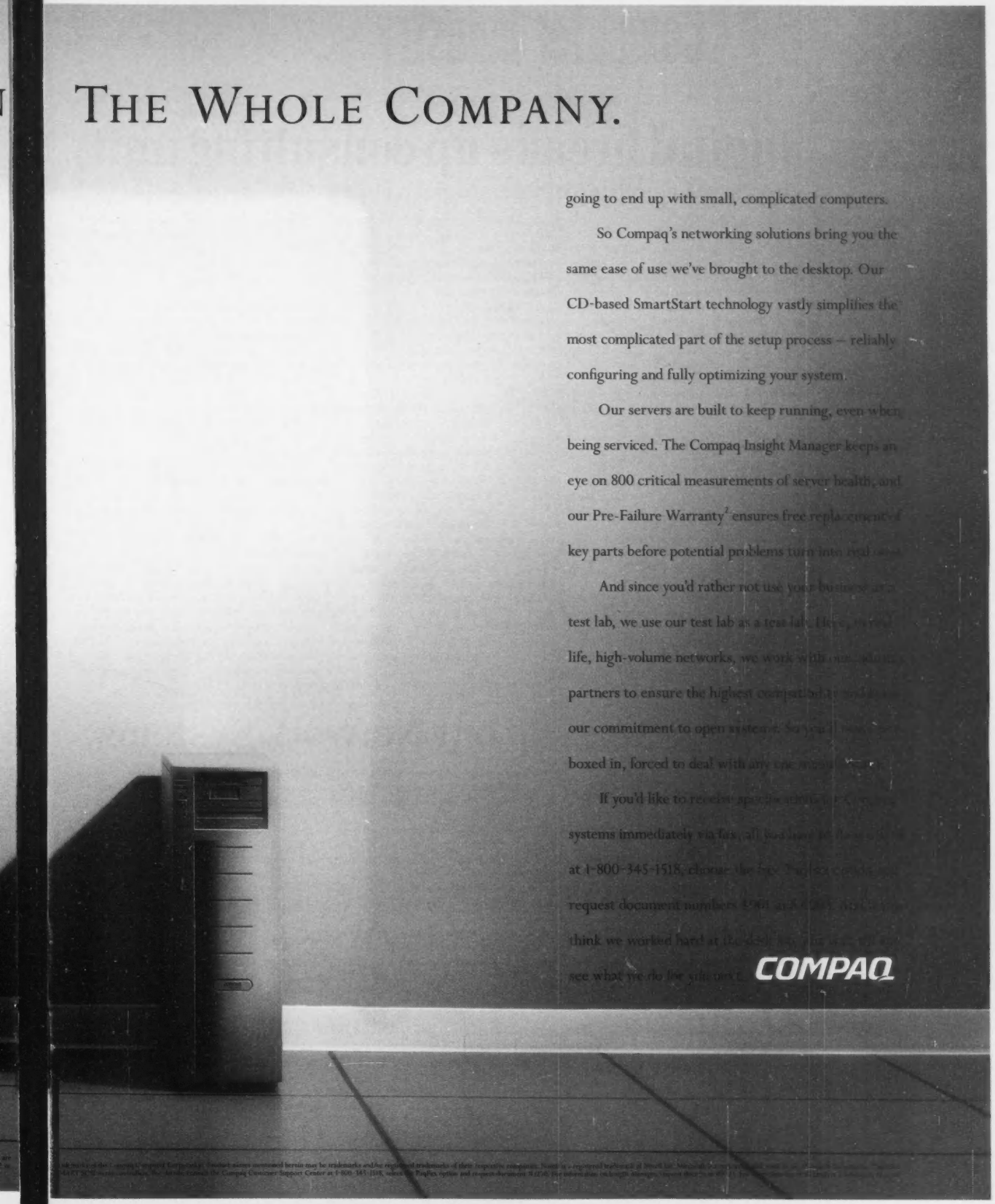
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Briefs

Borland quarter up

Borland International, Inc. announced a surprise profit for the first quarter of its 1995 fiscal year. The company reported a $61.4 million profit on $69.1 million in revenue for the quarter ended June 30. This is compared with a $6.2 million profit on $123.4 million in sales for the same period last year.

Kendall posts loss

Kendall Square Research Corp. in Waltham, Mass., announced a loss of $8.8 million for its second quarter ended June 25, compared with a $3.5 million loss for the same period last year. Revenue was $5.7 million for the quarter, about the same as last year.

Stratus to buy TCAM

Stratus Computer, Inc. in Marlboro, Mass., has agreed to acquire **TCAM Systems Inc.**, a New York- and London-based systems integrator. Stratus will buy all outstanding TCAM shares for $17 million. It could pay up to $15 million more if TCAM reaches planned objectives in the next three years.

SHORT TAKES Statistical software developer **SPSS, Inc.** in Chicago said it will acquire **Systat, Inc.** in Evanston, Ill. Systat develops products for the scientific and engineering segment of the statistical market.... **United Parcel Service, Inc.** in Atlanta has purchased a 19.7% stake in **Connect Software**, a software development and publishing firm in Redmond, Wash. Connect Software will work with UPS to develop Windows software for UPS' automated shipping and information systems.... **Cisco Systems, Inc.** in San Jose, Calif., has completed its acquisition of **Newport Systems Solutions, Inc.** for roughly $90.8 million.... **The Dun & Bradstreet Corp.** has acquired a 4.9% stake in **Manugistics Group, Inc.**, a supply chain management software company.

Digital breaks up consulting unit

Reorganization splinters 6-month-old group; other departments absorb pieces

By Mary Brandel

First there was the "new Digital." Now there is the "newer Digital."

Last week, Digital Equipment Corp. dissolved its Digital Consulting unit, one of nine business units named when it reorganized the company just four weeks ago.

Had the plans been in place, the decision would have been part of the July 14 announcement, according to a Digital spokesman. But the company could not "keep waiting around until every piece was perfect," he said.

Digital's reversal came after widely circulated reports that the unit was for sale. Additionally, some observers said the former vice president of the unit, Gresham Brebach, had proposed to purchase pieces of the business. Brebach is no longer at Digital.

Life is short

The short-lived Digital Consulting unit was originally established in February and made autonomous in July.

Reorganization plans

Although no longer a separate body, pieces of the 14,000-strong unit will live on in the following ways:

- The largest piece by far, according to Digital, is the systems integration and technology consulting businesses. These will move to the Accounts Business unit, which houses the direct sales force for the Top 1,000 Digital accounts.
- Network integration and training will be subsumed into the Multivendor Customer Services unit, headed by John Rando. That unit already does some network integration [CW, Aug. 8].
- Outsourcing and management consulting will be managed by Robert McNulty, chief information officer at Digital. He will report to Chief Executive Officer Robert Palmer.

The transition will be complete Jan. 1. No specific layoffs are included in the plan.

According to Digital, the move is partly intended to simplify systems integration services for its 1,000 largest customers. "Rather than having major customers called on by the account team, multivendor services and Digital Consulting, we focused it more," the spokesman said.

But the rules are not black and white. Medium-size and smaller customers "can still get direct service from Digital," the spokesman said. "But more commonly, partners will do that business."

Even in large accounts "it still may be better to broker a relationship with one of these other [partners]," he said.

Most analysts agreed the move is better than a sale. "Unless DEC wants to become just a commodity hardware pusher, it needs a solutions capability," said Steven Milunavich, an analyst at Morgan Stanley Group, Inc. in New York.

Taking a step back

At the same time, observers said they see systems integration taking a backseat.

"It falls right in line with their attempt to get focused, and the focus is on client/server hardware and the Alpha architecture," said Franc Romano, an analyst at Aberdeen Group in Boston.

He predicted there is a good chance Digital will simply phase these services out in the future.

However, in a recent interview, Palmer emphasized systems integration as a core competency.

The new systems integration business will be vendor-independent, "but our strength is in Digital platforms," the spokesman said

Analysts also said the change occurred because the $2.5 billion business was not profitable. Digital's spokesman said that was "definitely not" the case. But clearly, consulting did not work as a separate unit.

"We've certainly learned some lessons in the past year with this business," the spokesman said. "I think we have the right balance now."

StorageTek will buy Network Systems

By Jean S. Bozman

■ Storage Technology Corp. said last week it would acquire $215 million Network Systems Corp. in Minneapolis in a stock-swap deal by year's end. The move will give StorageTek control of networking software that will help the company broaden its reach into the client/server market.

The $300 million deal, which will expand StorageTek's $1.4 billion mainframe peripherals business, is expected to be completed later this year. It will also help StorageTek gain a foothold in the growing market of enterprise networks for PC LANs and distributed servers, analysts said.

The deal was approved by both boards of directors but still needs the approval of Network Systems' shareholders. StorageTek also acquired XL/Datacomp, Inc., an IBM AS/400 reseller, in late 1991 for about $150 million and Amperif Corp. in 1993 for about $75 million.

Industry analysts said it was not surprising that StorageTek turned to an acquisition to expand its 25-year-old business.

"It's typical in a maturing market," said Roxanne Googin, a vice president of research at Gruntal & Co. in Beverly Hills, Calif. "When the top line isn't growing, you grow by acquisition."

Network Systems, known for its Hyperchannel mainframe connectors in the 1980s, sells channel extenders that link mainframes and peripherals. Now profitable, Network Systems had aging products and posted a 1992 loss following its acquisition of Vitalink Corp. in Fremont, Calif. The company bounced back after its 1993 acquisition of internetworking firm Bytex Corp. in Westboro, Mass.

"Smaller companies need more strength in order to be able to survive in a very competitive industry," said Michael F. Ashby, president and chief operating officer of Network Systems. He said the firm's older technology will be replaced by mid-1995 as new products, including the Enterprise Router Switch (ERS), roll out.

A merger would formalize Network Systems' two-year alliance with StorageTek, which links multiple StorageTek tape "silos" for remote-site backup of mission-critical data. StorageTek plans to use Network Systems' software to create products that link distributed client/server systems to networked data storage banks.

"The ultimate goal is to get to a storage format that is completely independent of any computer system," a StorageTek spokesman said.

Joseph Payne, an analyst at Wheat First Butcher Singer in Richmond, Va., said the merger extends StorageTek's reach into distributed computing on enterprise networks. "They are in a big marketplace that is static. Having a storage center on the network is a more relevant marketplace for the future," he said.

David Weiss, executive vice president of StorageTek's systems development, said Network Systems' software would allow his company's tape libraries and Iceberg disk drives to store client/server data. ERS, due out next year, will be added to a StorageTek product in two years, he added.

"ERS is going to be the key for providing interoperability on the network," Weiss said. "We will use this to attach to any server over any network."

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Big Brotherhood

A lot of elements make up the truly unique culture of the U.S., but the key ingredient is a zealous regard for individual rights such as privacy.

Now, as we stand on the threshold of the next great frontier known as cyberspace, we face a collision between the desire to push the limit of this frontier and the spirit of laws laid down more than 200 years ago. In other words, the minutemen are standing steadfast on ramps leading to the information superhighway.

Some recent news stories highlight this issue. Last week we wrote about the efforts of civil rights advocate Barbara Jordan to establish a national identification system to help employers discern illegal aliens from bona fide employables. Sounds simple enough in these days of rampant illegal border crossings.

Yet privacy advocates are slamming the proposal, for the same reasons so many people lined up in diametric opposition to the government's proposed Clipper chip: preservation of individual rights and distrust of government.

Lurking beneath cases such as these is a growing suspicion that information technology might become the ultimate agent of doom for individual rights — that George Orwell's *1984* really will happen, only perhaps 20 years late. And it isn't just government that is fueling this unease.

For example, think for a moment about the widespread ethical abuses — if not outright illegal uses — of database technology that have already occurred. A couple of years ago, fundraisers for a prominent and respected evangelist compiled lists of people who were up to their eyeballs in debt, then sent them letters soliciting $100 gifts in exchange for prayers to be said on behalf of their plight.

Of course, it can be argued that for every great advance in society there have been individuals eager to exploit that advance. But seldom if ever has there been a force like information technology that will be so utterly pervasive in the lives of everyone.

That notion should be cause for those whose professional lives revolve around information technology to reflect on the role they can play in ensuring that a conscienceless technology doesn't somehow grow an aura of diabolical intent or purpose. You know, kind of like HAL in *2001: A Space Odyssey*.

This technology-gone-haywire scenario may seem far-fetched until you listen to some of the arguments put forth to prevent what, by most reasonable inspection, seem like potentially beneficial deployments of computer technology. The Clipper controversy is a good case in point, the illegal alien ID system another. The privacy crazies aren't really crazy at all, and they see their mission as a noble one. But they have some peculiar ideas about information technology.

Unfortunately, suspicion of governmental institutions and some private ones runs deep in this society. We are seeing more these days the reflection of that suspicion in ways that may slow and even prevent the use of technology toward the greater good.

Bill Laberis

Bill Laberis, *Editor in Chief*
Internet: *blaberis@cw.com*

Rich Tennant is on sabbatical. This is one of his classic cartoons from 1989.

Letters to the Editor

Plenty of steam

We find it astonishing that you would publish a front-page article speculating on the future of a strategic product such as Pathworks ["Pathworks loses steam," CW, July 25] based on a thin market analysis of just seven users. Pathworks has an installed base of well over 2 million users and, as you point out, is Digital's No. 1-selling layered software product. Surely it deserves more careful and thorough reporting.

As we told your reporter, Digital will continue to provide significant enhancements to Pathworks servers based on Microsoft's networking technology. We will also add value to other network operating system environments, including Microsoft's LAN Manager 3.0 in Windows for Workgroups and NT Server, IBM's LAN server, Novell's NetWare and Apple's AppleShare. According to a Gartner Group report, "The strength of Pathworks has always been as an integration superset of network operating system functionality where multiple clients, networks and file-sharing protocols are required."

Microsoft has stopped developing its OS/2 server product, but IBM is continuing enhancements to OS/2 and LAN Server. OS/2 users running Pathworks for OS/2 4.1 can choose either LAN Manager or LAN Server while enjoying full interoperability with the rest of the Pathworks, Microsoft and NetWare environments.

Digital is committed to bringing the most current networking technologies available on each platform to each customer and to providing a smooth path for its installed base to move up to these technologies.

Mark O'Connell
Director
Software Product Marketing
Digital Equipment Corp.
Maynard, Mass.

Unix misses

"IBM and CA enhance database features" [CW, July 18] gives an impression that the Unix success was due to the strength of the databases. In the initial stages, most Unix databases were never subjected to high-volume processing. Even today, no Unix product is anywhere near the OLTP volume of a mainframe database.

Gopi Nathan
Nordic Support Center,
DB/DC Products
Computer Associates Norway
Oslo

Keep an Open mind

I was shocked to read "OSF trims down, mulls its future" [CW, June 27] and the extraordinarily negative quotes from Roy Schulte of Gartner Group. Schulte states that IBM, Hewlett-Packard and Digital "don't need a third project to manage any process" but need only a "central broker to push paper around."

Why would IBM, HP and Digital want anyone merely to push paper around while they executed a joint project? More to the point, why would they invest large sums of money to have someone do that?

There are 15 sponsors of the Open Software Foundation, not just three. Schulte shows naivete in declaring that complex, multiparty development projects have no need for vendor-neutral project management in this very competitive world. The OSF's mission is to work with the industry to build the open systems infrastructure the marketplace demands.

Schulte also dismisses the engineering role the OSF played in producing the technology with which we are associated. I find it difficult to believe that he fails to recognize the extraordinary engineering achievement of the OSF in providing OSF/Motif, Distributed Computing Environment, Distributed Management Environment, OSF/1, ANDF and microkernel.

I suppose I must eventually learn to live with Schulte's pontificating about matters he appears to know little about, but shame on *Computerworld* for associating itself with it.

David Tory
Chairman
Open Software Foundation
Cambridge, Mass.

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Dispensing the measurement myths

Howard Rubin

Function points can solve all of information technology's problems, right? Won't they take care of everything from measuring information technology's value to providing a sound basis for estimating the next object-oriented-GUI-client/server-virtual reality-workflow management-agent-based-RAD-developed system? Won't it suffice to just banner the halls of systems development with charts to claim that the demons of process improvement and Total Quality Management have been satisfied? In two words, no way!

There is a real change coming in software measurement, but as the saying goes, the more things change, the more they stay the same. It's about time the basic myths of measurement are blown away. In fact, senior information technology management will welcome this new coming of measurement. First for some sobering news — since 1980 more than 500 information technology organizations have tried to put measurement in place, but fewer than 80 have been successful.

Myth 1 is that measurement is overhead. Measurement gurus typically quote the cost of measurement to be at least 5% to 8% of a budget. This implies that measurement is an explicit function and is overhead added to the cost of the real work that has to be done. Rather than being overhead, measurement is a value-added, real-time part of information technology practice and process.

Myth 2 says there is a "best" metric and selecting it will solve all measurement problems. There is no single cure-all metric, no silver bullet that can assess all aspects of an information technology organization.

Myth 3 is that the most critical success factor for a measurement program is choosing the right metric. Wrong! The critical success factors for measurement program implementation are the fit of the metrics with business goals, their fit as part of the natural workflow process, their intrinsic quality and the organization's readiness to actively use measures. You can lead an information technology organization to the best metric, but it won't make them measure.

It's about time the basic myths of measurement were blown away.

Myth 4 says that metrics are forever. Most measurement programs are built as if they are immutable. Rarely does one see triggers in measurement programs, indicating the measures themselves must be reconsidered. If you want your measurement program to fail, design it so it can't be enhanced with new metrics for new needs.

Myth 5 says leave the business of business measurement to the business and let information technology focus on its internals (in peace). This clearly flies in the face of what CIOs consider to be important and is contrary to the basic business philosophies of participation, empowerment and cross-functional development. If you don't view and measure information technology as part of a business — you'll soon be out of the business.

Anyone getting started in measurement today should skip the myths, ignore the conventional wisdom and determine why they are measuring and then what they need to measure. Information technology and business executives now know that measurement is a competitive advantage. How do you measure measurement success? The irony is that those who can answer that really don't need it.

Rubin is a professor in the Department of Computer Science at Hunter College of the City University in New York and a faculty affiliate at Gemini Consulting and Cap Gemini America, Inc.

What if software were free?

Esther Dyson

In the long run, software is free. If you look carefully, you can see signs of it all around you. Although in the old days a software product could provide an annuity, nowadays software companies make most of their profits in the first few years of shipping a product. Microsoft's profits on DOS, for example, aren't going to shareholders' dividends but to investment in future products.

To understand, you have to ask, "How much does software cost?" That doesn't mean how much is it worth, but how much does it cost above the cost of designing it, distributing it and marketing it? An economist would observe, correctly, that competition will ultimately drive the price of software down to that level. In the long run, there's no part of the price attributable to "intellectual property" because there's no way you can charge for it in a world where most software can be copied.

The cost of software isn't for the product but the infastructure.

In literary works, you pay for the uniqueness (protected by copyright, for now); in software, you pay (but not a lot) for the standards. For certain inventions, you pay for novel ways of doing things (patents), but in most application software, you're really paying for embodiments of generally known ideas and business processes.

Consider this scenario: Suppose Microsoft were to decide to put Windows in the public domain. Anybody could use it; anybody could copy it and resell it (for whatever they could get, which wouldn't be much). What would happen? Not much in the long run (although Novell would surely denounce this as another example of predatory practices). First, of course, everyone would get Windows free. The biggest harm would be to disk duplicators, box makers, shrink-wrap factories and the plastics suppliers who sell to them. In Part 2 of the story, people would need help installing Windows to get it to work with other applications.

But Microsoft would not bother to return user phone calls because it would not be getting paid for this product. Users would turn to dealers, resellers and other sources of aid, who would say, "We'll give you Windows for free, but you have to pay for support and installation assistance."

So, it turns out, that's what the money is for. It's not for the product but for the infrastructure around it. Vendors put a price tag on a product so resellers can collect money from end users, but that money goes more to the support community, not the software's creator, once the costs of producing the product (design, bug removal and so on) have been covered. After the first year or so, the vendor begins to get a return on its investment in the market infrastructure, the creation of the software is just a part of that. The "market infrastructure," incidentally, includes not just the dealer channel but the user base. Indirectly, the vendor invests in their education, their brand preference (through advertising) and their applications, models and other data that use the software.

The "price" of the product is merely a means of recovering that investment, but the investment was not only in the product itself. Indeed, the best way for a vendor to recover the investment is to come out with a new product that can recover the investment while the price of the old product drops to meet competition.

Dyson is president of EDventure Holdings, Inc. in New York. She welcomes readers' thoughts and can be reached on the Internet at edyson@eff.org.

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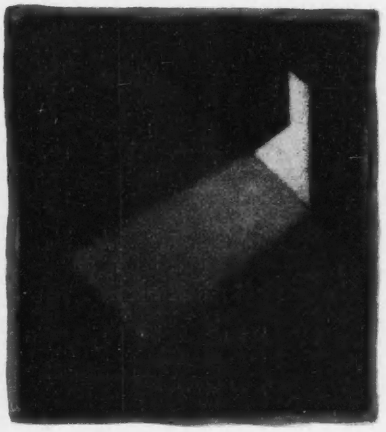

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Software distribution

Try-before-buy largely untried

By Ed Scannell

While the try-before-you-buy method of software distribution has won over some corporate fans, the medium is still fighting for broader market acceptance.

A little more than a year ago, IBM's Software Manufacturing Co., along with distributors Merisel, Inc. and Ingram Micro, Inc., launched programs that allow users to browse through a wide variety of recently released applications and operating systems on CD-ROM from their offices.

If users want to make a purchase, they simply call a toll-free phone number to receive a code that "unlocks" the program and allows them to copy it to their hard drives. Users can pay for the program during the same phone call using a credit card.

The distribution programs were intended to save users time spent driving to local retailers to check out the latest titles, give them more time to get a feel for new software and save them money, compared with software sold through resellers.

Some prefer face to face

Some corporate users said they find these programs useful for making buying decisions on hundreds of lesser-known applications from smaller vendors, but many still prefer dealing directly with vendors when buying best-selling titles or hundreds of copies of a program.

"One problem with all these programs is that most corporate accounts get prereleases of software long before it ends up on a CD. That's where we make a purchasing decision. You don't see a lot of prereleases of code on CDs," said Brian Moura, assistant city manager for the city of San Carlos, Calif.

CD-based distribution programs have also faced competition from bulletin boards during the past year. Many corporate users are downloading beta versions of programs from software bulletin boards rather than waiting for finished products on CD-ROM.

"We actually downloaded the latest build of Chicago over the Internet weeks before Microsoft could get us a copy of it on CD," said one Chicago beta tester who requested anonymity because of his nondisclosure agreement with Microsoft Corp.

Still, the idea of perusing a CD-ROM with a variety of software titles that users can specifically request from a vendor or reseller has its purpose and appeal.

Greatest hits

For instance, the idea behind IBM's CD Showcase was to let users mix and match different software titles to solve a specific problem, much as music buyers might put together a compilation of their favorite songs at Tower Records.

"This business is all touch and feel. You need to play around with something before you know you want it," said Pete Bavaso, an information systems manager at The Darby Group in Westbury, N.Y., one of the nation's largest suppliers of medical products.

While IBM officials said they are pleased with the acceptance of CD Showcase in its first year, one element holding the program back is the slower-than-expected sales of CD-ROM drives. But they believe that impediment should be less of a factor by next year.

"It's been a little slower than expected. We expected to see a dou-

Try-before-buy, *page 42*

Under lock and key

A CD-ROM unlocking scheme may include the following steps for buying software:

1. Users receive a CD-ROM containing a variety of software applications, utilities or games from a local reseller or vendor.
2. Users view full demonstration of programs on CD-ROM.
3. Users call the vendor to request a code that unlocks the chosen program to the user's hard drive.
4. Users pay over the phone via credit card.

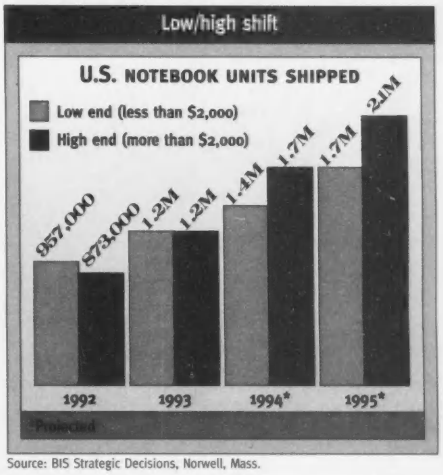
Short supplies madden high-end notebook users

By Michael Fitzgerald

A horse of a different color is no good to users if they cannot corral it, and new high-end notebooks are tough to lasso, users said. A shortage of such notebooks has slowed project deployment and created headaches for information systems managers.

For instance, IBM's attempt to shift users away from its backlogged high-end ThinkPad notebooks with active-matrix color screens to the passive-matrix color versions seems to have backfired, in part because the company improperly forecast demand for models with 340M- and 510M-byte hard drives.

As a result, the 755Cs, IBM's high-end passive-matrix color notebook, is also in short supply.



Source: BIS Strategic Decisions, Norwell, Mass.

Backup plan

"IBM has forced us to [a second source]" for notebooks, said an IS manager at a Fortune 500 company in the Northeast, who asked not to be identified. The manager said IBM had promised several hundred units of the 755Cs by the end of the second quarter but delivered only a few. He said he had no choice but to turn to another vendor to meet his project needs.

The manager said the supply issues mean that "you don't do" project rollouts.

"We keep apologizing for implied commitments [that we don't meet]," he added. "We go and say we're aiming for whatever target date, and it doesn't happen, and it's just a mess."

His second choice for a notebook, Compaq Computer Corp.'s LTE Elite, may not bring improvement. Other users have commented on the limited availability of these products.

"We can get small quantities [of Elites] but not enough to roll out to a department," said Glenn Jurmann, office technology manager at Baxter Healthcare Corp. in Deerfield, Ill.

Compaq announced the Elite in March, with a second-quarter delivery target. The product has slowly trickled into the market, though, and one IS manager at a major food company said the delays have led his company to dump Compaq in favor of notebooks made by Toshiba America Information Systems, Inc.

"Remarkably enough, we told Compaq they were out [of the account] and magically 50 Elites appeared," said the food company manager, who asked not to be named.

No small matter

The manager said projects were never killed because of product delays, but they could slip, or another vendor's machines would be substituted. Substituting machines, though, presents a problem in that "supporting two platforms is not trivial, even with Plug and Play," the manager said.

While Compaq's and IBM's sheer size have made their delivery woes an issue for users, other vendors, too, are suffering from shortages on the high end of the notebook market. AST Research, Inc., for instance, has a four-week delay on its new Ascentia 900N. Toshiba also has delays on its high-end corporate notebooks.

"Depending on the vendor, these supply problems have been going on for more than a year now; it's ridiculous," said Jeffrey Henning, an analyst at BIS Strategic Decisions in Norwell, Mass. "It's definitely already hurt IBM. I don't think Compaq has felt it yet, but they're not immune. Nobody's brand name is worth so much that failing to deliver product is going to keep people loyal to them for very long."

Room for the little guys

Supply problems for the Big 4 in notebook computing have slowed market consolidation, analysts said. IBM, Compaq, Toshiba and Apple Computer, Inc., control approximately 50% of the notebook market, according to Dataquest, Inc., but other large players with significant brand recognition, such as NEC Technologies, Inc. and Zenith Data Systems, continue to win deals by shipping products when the Big 4 cannot. The return of Dell Computer Corp. to the portable market last week could further loosen the grip of the big players.

"If [Dell] maintains their traditionally high level of support, then why wouldn't you give them a try, especially if you deal with Dell on the desktop?" asked Leonard Steinbach, vice president of information technology at the National League for Nursing, Inc. in New York, which uses Dell desktops.

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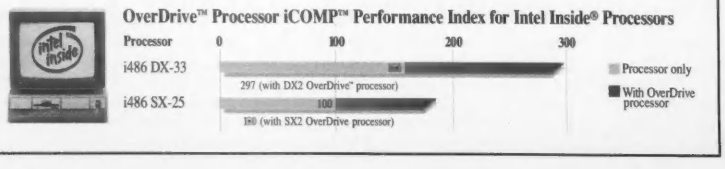

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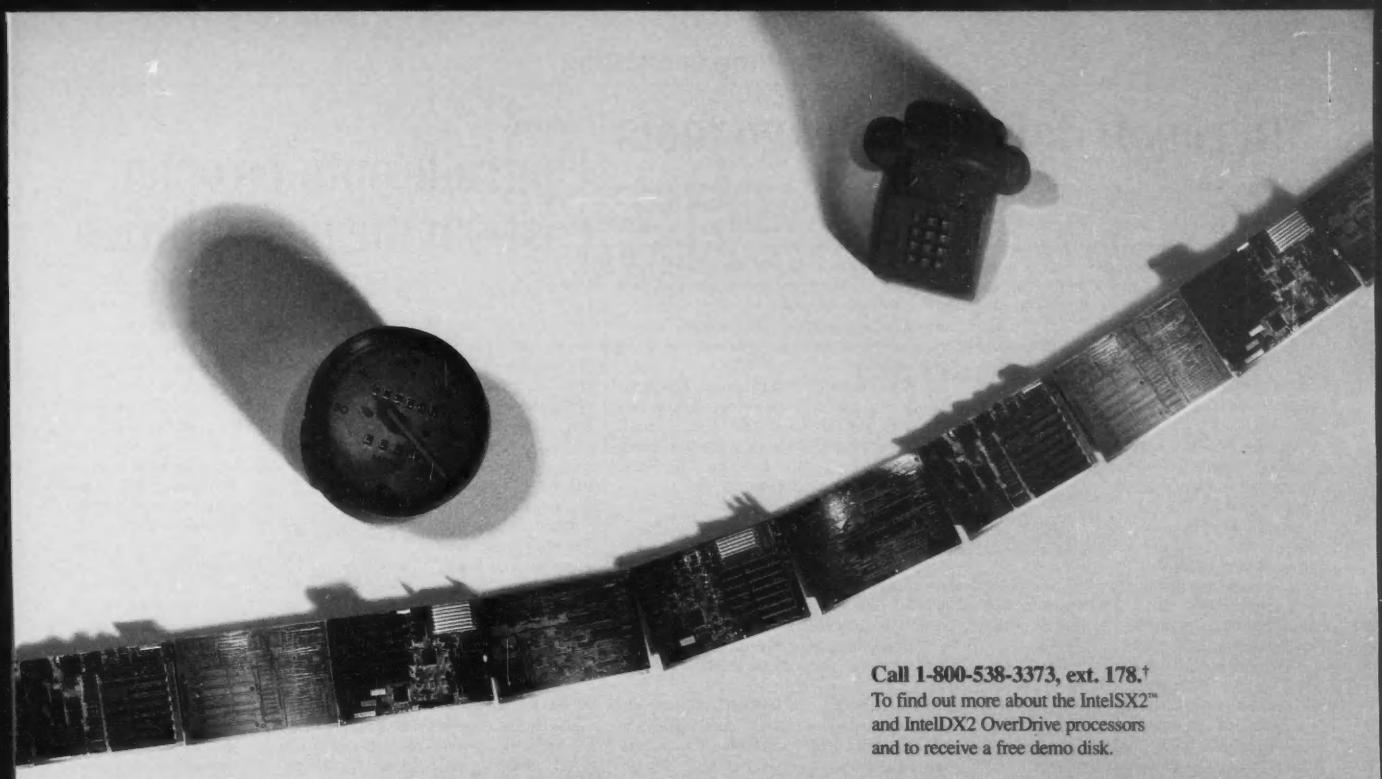

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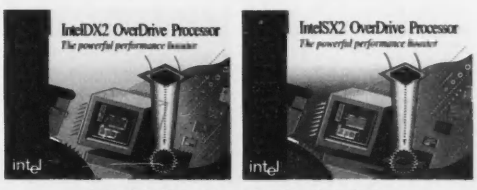

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Microsoft debuts Chicago tools

By Stuart J. Johnston
CHICAGO

Microsoft Corp. demonstrated at Windows World here recently a set of systems management tools and other features in the Chicago operating system aimed at simplifying the task of administering the new system.

Chicago, the next major version of Windows, will come with utilities that include a System Policy Editor tool to impose specific systems policies outlining what users can and cannot do.

Chicago is also expected to include such tools as a graphical system monitor, which will let users or help desk technicians monitor the performance of items on users' PCs in real time. Those items include processor usage, the number of reads per second being performed on the hard drive and the number of users accessing files on that drive at a given moment.

"The monitor is definitely very cool," said Enis Moran, president of Graphical Bytes, Inc., a software consultancy and commercial developer in South Hampton, N.Y. "It lets you determine graphically what's happening in the system on any number of items individually."

WINDOWS WORLD

Remote Rx

In the demonstration scenario presented at the conference, a user called the help desk to ask why his system was running so slowly. By using the system monitor to remotely monitor the caller's PC, the help desk technician discovered that another user was secretly reading a large file off the caller's machine in the background.

By using the Systems Policy Editor, the help desk technician stopped the interloper and adjusted the caller's PC to prohibit access to such files in the future.

The System Policy Editor also lets administrators hide some system features from individual users, such as the icons for the Windows Control Panel, or establish security settings.

Another feature built into Chicago to aid its integration into information systems managers' systems plans is a central security "pass-through" function that works with both Novell, Inc.'s NetWare and Microsoft's Windows NT Server security system, said Brad Chase, general manager of Microsoft's personal operating systems group.

The pass-through feature enables systems managers to maintain one set of passwords on the server and eliminates the need to keep a copy of users' passwords on individual machines, as is the case with Personal NetWare, Chase said.

Personalized PC

Chicago, or Windows 4.0, can be customized to run with separate configurations for several individuals by using user profiles. These profiles can be used to define capabilities ranging from how the graphical user interface looks to each user to what network drives and files are visible.

Alternately, Chicago will still support so-called .INI (for "initialization") files and AUTOEXEC.BAT and CONFIG.SYS files, Chase said. Corporate users expressed concerns last December that Chicago might not let them support multiple users on a single PC [CW, Dec. 20, 1993].

Microsoft also demonstrated a "hands-free" installation of Chicago on a desktop PC from a NetWare server.

In other developments at the show, Hewlett-Packard Co. announced it will ship a version of its OpenView network management product that works with Chicago in the first half of next year.

Chase also said Microsoft will charge a "small fee for cost of goods" when it begins broad testing of Chicago by hundreds of thousands of users this fall. Although the fee has not been determined, it may run as high as $30.

Try-before-buy

CONTINUED FROM PAGE 39

bling of [CD-ROM] drives in 1994, but we did not. We expect the Christmas selling season to be phenomenal for CD-ROM drives," said Ian Bonner, IBM's director of independent channel marketing.

On the bandwagon

This past February, IBM's CD Showcase received a boost when 18 software developers, including archrival Microsoft, decided to make their best-selling applications available through the program. Other vendors joining the program included Lotus Development Corp., WordPerfect Corp. and Borland International, Inc. IBM officials said there are more than 300 products available through the program.

Providers of try-before-you-buy programs say developers have as much to gain as users in that they become better educated about the dynamics of various target markets and get clearer profiles of their users.

"Registration rates really can increase with a program like CD Showcase. We can now electronically capture registration data the moment a user unlocks a title," said Guy Pribyl, a senior account manager of OEM relations at Microsoft.

IBM and Merisel officials believe their programs also benefit resellers in that resellers can mix and match a variety of software titles to better meet the needs of vertical markets such as accounting or medicine. And like software suppliers, they gain more specific information about their customers.

"I think it is a good alternative means of distribution, and in most cases, it should work in some pockets [of corporations]," said Bobby Orbach, president of Orbach, Inc. a New York-based consultant on distribution issues.

The demise of the impulse buy

Some resellers, however, believe that such programs are causing some channel conflicts and eroding sales among walk-in customers.

"I do a lot of business from people who just walk in to buy just one package but end up making two or three impulse buys after walking around. Programs like these could take away from a lot of that," said one Computerland Corp. dealer in New York.

Platforms

Upgrade options open cost-saving possibilities

By Mark Halper
OREGON CITY, ORE.

Don't tell PED Manufacturing Ltd.'s Dave Howell "if it ain't broke, don't fix it."

The MIS director at the Oregon City manufacturing company raves about the performance of his Sequent Computer Systems, Inc.'s Windows NT box, but he is nonetheless considering changing platforms as he beefs up processing power. His reason is a good old-fashioned one.

PED Manufacturing's Dave Howell: *Cost is the key motivator*

"They have to be a little more realistic on pricing," Howell said. It will cost him about $60,000 to upgrade to a dual Pentium-based Sequent system, compared with about $40,000 for a comparable model from a traditional PC vendor, Howell said.

Paying for power

PED Manufacturing, an artificial human joints maker, supports about 70 PCs on a dual-processor, 486-based Sequent box that runs various applications using Microsoft Corp.'s Windows for Workgroups on an NT SQL Server database.

PED needs additional processing power so it can add computer-aided design and manufacturing and an integrated manufacturing program to the server. It also needs to better support an additional 10 PCs it is adding as part of an ongoing 30,000-sq-ft plant expansion due to be completed by October, Howell said.

Howell, who is not ruling out changing processor types altogether to a Digital Equipment Corp. Alpha-based system or a Netpower, Inc. RISC-based box, is mostly interested in sticking with an Intel Corp. platform.

And while Sequent is high on his list, Howell said he cannot ignore the fundamental pricing difference between Sequent, which is ladened with a cost/price structure from its multiprocessing Unix heritage, and traditional PC vendors such as Compaq Computer Corp. that have risen to the multiprocessing NT occasion from more price-conscious roots.

"Sequent is structured to sell at the very high end where they can charge margins that are pretty good," said Norton Greenfeld, an analyst at Computer Intelligence/InfoCorp in Westboro, Mass. "The PC vendors are not in that game; they generally have lower, thin margins. If the customer finds that price is the determining criteria, the PC vendors will win."

Howell was one of the early and few adopters of the Winserver line of NT boxes unveiled by Sequent early last year. PED has been slowly migrating from a 7-year-old proprietary system from now-defunct Point Four since July 1993.

At the time, NT hardware vendors were few and far between, but as Howell noted, Sequent "has a lot of competition out there now."

One option Howell is exploring is a chip upgrade for his current box. But, he said, Sequent told him it is not sure it can simply swap processors, and he is waiting for a final answer from the firm.

Pricing aside, Howell said he is satisfied with Sequent's performance. Furthermore, Sequent has been there whenever PED required vendor assistance. "Their technical support has been some of the best we've dealt with," he said.

Briefs

NEC, SunDisk team up

NEC Corp. and **SunDisk Corp.** recently announced they are collaborating on the development of 256M-bit flash storage technology. The two companies expect the collaboration to produce 500M-byte flash cards vs. the 40M-byte maximum that exists today. They hope to lower flash memory prices overall in the second half of the decade.

AT&T helps out GTE

GTE Telephone Operations in Dayton, Ohio, recently reached out to **AT&T Global Information Solutions**. The AT&T division will implement a data management strategy for GTE's customer service operations for an undisclosed sum.

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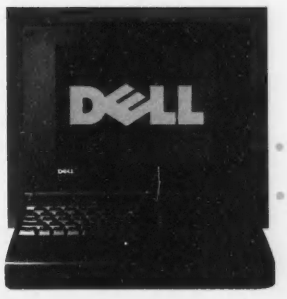
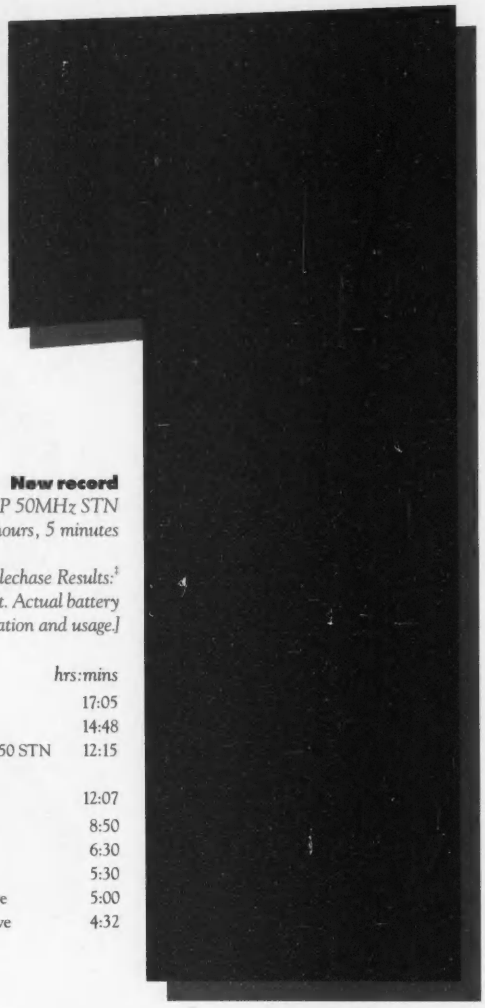


#1 in the independent VeriTest Steeplechase Battery test‡ In fact, the Dell® Latitude™ XP DX2/50 destroyed the previous 486 battery life record by almost 5 hours.



New record
Dell Latitude XP 50MHz STN
Steeplechase: 17 hours, 5 minutes

Typical VeriTest Steeplechase Results:‡
[Testing with power management. Actual battery life will vary with configuration and usage.]

NEW RECORDS:	*hrs:mins*
Dell Latitude XP DX2/50 STN	17:05
Dell Latitude XP DX4/100 TFT	14:48
Dell Latitude, 2 NiMH batteries DX2/50 STN	12:15
OLD RECORD FOR 486 MONO:	12:07
IBM ThinkPad 350C (SL/25) passive	8:50
IBM ThinkPad 500 (486/slc) mono	6:30
Toshiba T4800ct (DX4/75) TFT	5:30
IBM ThinkPad 755Cs (DX4/75) passive	5:00
Compaq Contura 4/25c (SL/25) passive	4:32

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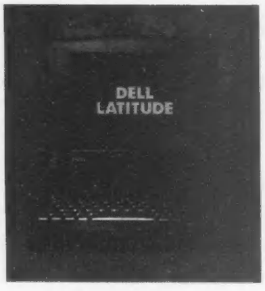

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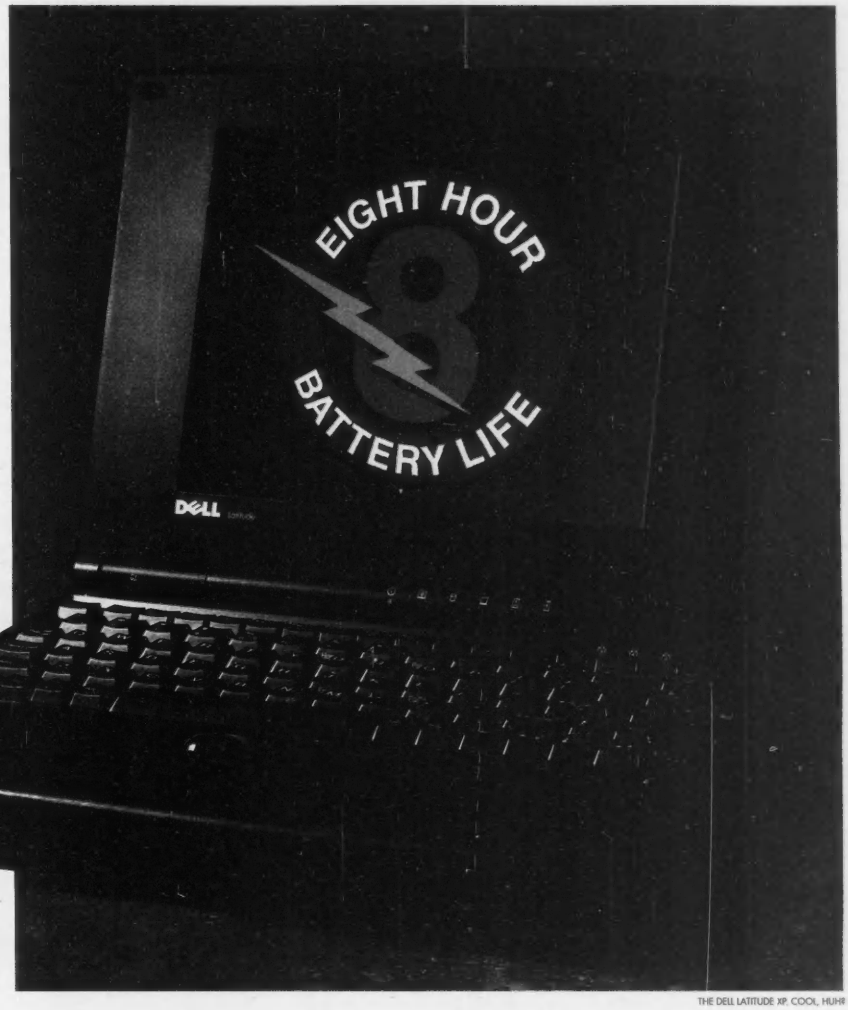

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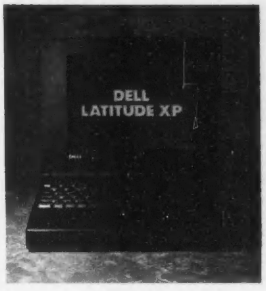

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New Products

VideoLogic, Inc. has announced PCIMovie, a multimedia and Windows accelerator with Video Electronics Standards Association Media Channel connectivity.

According to the Cambridge, Mass., company, PCIMovie provides high-quality, full-screen video playback and high-performance graphics acceleration in one board. Users can scale postage-stamp-size video clips up to full screen without a reduction in frame rate or degradation of quality.

PCIMovie supports 24-bit true color for photo-realistic images and resolutions of up to 1,280 by 1,024 pixels for extra space on the desktop.

PCIMovie costs $499.

▶ *VideoLogic*
(617) 494-0530

Genoa Systems Corp. has announced the Phantom 64 graphics accelerator.

According to the San Jose, Calif., company, Phantom 64 displays accelerated true color 24-bit images with a refresh rate of 106 MHz.

The product is available in both Peripheral Component Interconnect and VL-bus models with either 1M or 2M bytes on board.

The board powers down Video Electronics Standards Association-compliant monitors and simulates 1,600- by 1,200-pixel resolutions on lower-resolution monitors.

The Phantom 64 costs $249.

▶ *Genoa Systems*
(408) 432-9090

Olivetti Canada Ltd. has announced the M6 Suprema family of PCs.

According to the Markham, Ontario, firm, the PCs feature Peripheral Component Interconnect local-bus architecture, integrated business audio, fax and modem facilities and enhanced graphics capabilities.

The models include Intel Corp.'s Pentium or I486 processors and energy-saving features and come in two sizes, depending on space, with up to five bays and five slots.

Prices start at $3,490.

▶ *Olivetti Canada*
(905) 477-8250

Evergreen International Technology, Inc. has announced Evergreen Notes 1.0A for Windows, an annotation utility.

According to the Vancouver, British Columbia, company, Evergreen Notes lets users attach messages to electronic documents and software in the same way as stick-on notes. The messages can be written or verbal.

Users can attach voice corrections directly to documents or add additional instruction to training applications.

Evergreen Notes 1.0A for Windows costs $69.

▶ *Evergreen International Technology*
(604) 986-6121

Panasonic Communications and Systems Co. has announced the KV-SP500 series, a combination scanner and printer unit for high-speed document imaging applications.

According to the Secaucus, N.J., company, the KV-SP500 compresses and stores text and images in a computer's memory via an image processing board, processing documents at 40 pages per minute.

The scanning function offers user-selectable resolutions of 150 to 350 dot/in., and the printing function produces 300 by 300 dot/in.

The product includes either a simplex unit or a duplex version for two-sided scanning.

Prices range from $5,499 to $6,499.

▶ *Panasonic Communications and Systems*
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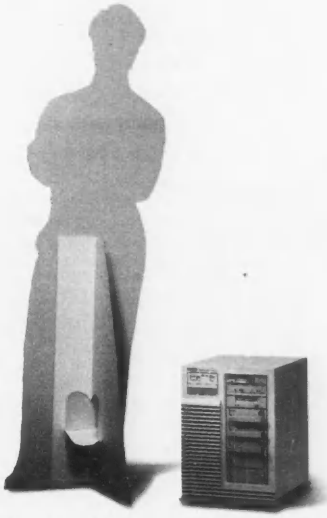

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†U.S. list prices effective 7/1/94. *U.S. list price for HP NetServer 4/66 LM Model 1 including 66-MHz Intel486 DX2, 16-MB RAM. **U.S. list price for HP NetServer 4/66 LF Model 1 including 66-MHz Intel486 DX2, 8-MB RAM. ***U.S. list price for HP NetServer 4/66 LC Model 1 including 66-MHz Intel486 DX2 and 8-MB RAM. Prices subject to change without notice. Intel486 DX2, 1DX4 and Pentium are trademarks of Intel Corporation and the Intel Inside and Pentium Processor logos are registered trademarks of Intel Corporation. ©1994 Hewlett-Packard Company PPG405

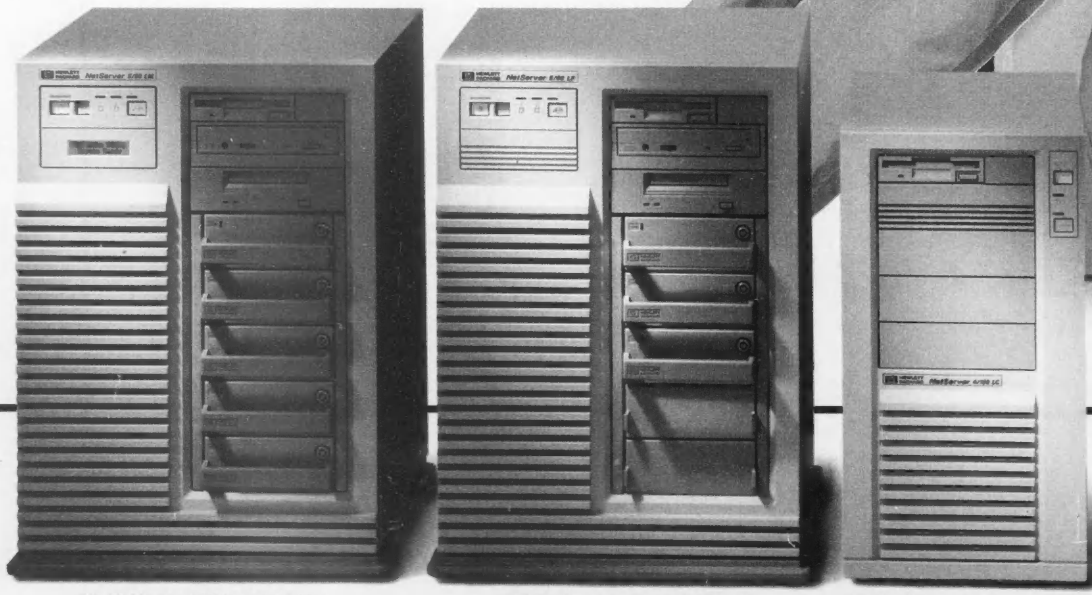
HP NetServer LM • 90- and 66-MHz Intel Pentium™ processor, 66-MHz Intel486™ DX2 processor • Dual Intel Pentium 66-MHz Symmetric Multiprocessing (SMP) • Optional internal hot swap disk array (RAID 0, 1, 5, 6) and ECC memory • HP NetServer Assistant 2.0 included • 16-MB RAM standard, 384-MB maximum • Up to 256-KB write-back cache • 9 mass storage shelves • 8 EISA bus-master I/O slots • Integrated EISA Fast SCSI-2, IDE and video controllers • Designed-in security, serviceability, and cooling features • Tested and certified on all major network operating systems

HP NetServer LF • 66-MHz Intel Pentium processor, 100-MHz IntelDX4 processor, 66-MHz Intel486 DX2 processor • Automatic Server Restart • HP NetServer Assistant 2.0 included • Optional internal hot swap disk array (RAID 0, 1, 5, 6) • 8-MB and 16-MB RAM standard, 192-MB maximum • 256-KB write-back cache • 9 mass storage shelves • 2 PCI, 7 EISA bus-master I/O slots • Integrated EISA Fast SCSI-2, IDE and video controllers • Designed-in security, serviceability, and cooling features • Tested and certified on all major network operating systems

HP NetServer LC • 66-MHz Intel Pentium processor, 100-MHz IntelDX4 processor, 66-MHz Intel486 DX2 processor • Automatic Server Restart • 8-MB and 16-MB RAM standard, 192-MB maximum • Up to 256-KB write-back cache • 1 PCI, 1 PCI/EISA -combo, 4 EISA I/O slots • 5 mass storage shelves • Integrated EISA Fast SCSI-2, IDE and video controllers • Designed-in security, serviceability, and cooling features • Tested and certified on all major network operating systems

Management Solutions: HP Remote Assistant • $999† for intelligent EISA card and software • Complete remote control of server • Continual environmental and server hardware monitoring and error logging • Automatic Server Restart • Works on all major network management environments **HP NetServer Assistant 2.0** • Included with HP NetServer LM and LF; $495† option for HP NetServer LC • A customizable server management software tool set • Proactive system/component alerting and status information • Includes HP OpenView 7.1 • Comprehensive troubleshooting tools

HP Service and Support • A full range of support service from HP or HP-authorized resellers • Three-year, on-site, next-business-day limited warranty standard on all products; affordable upgrades to same-business-day or 24-hour, 7-day, 4-hour response • Complete technical and support information available through a wide range of media: HP Support Assistant CD-ROM subscription; fax-back service; BBS; CompuServe forum and telephone support



HP NetServer LM from $4,449* **HP NetServer LF from $3,249**** **HP NetServer LC from $2,529*****

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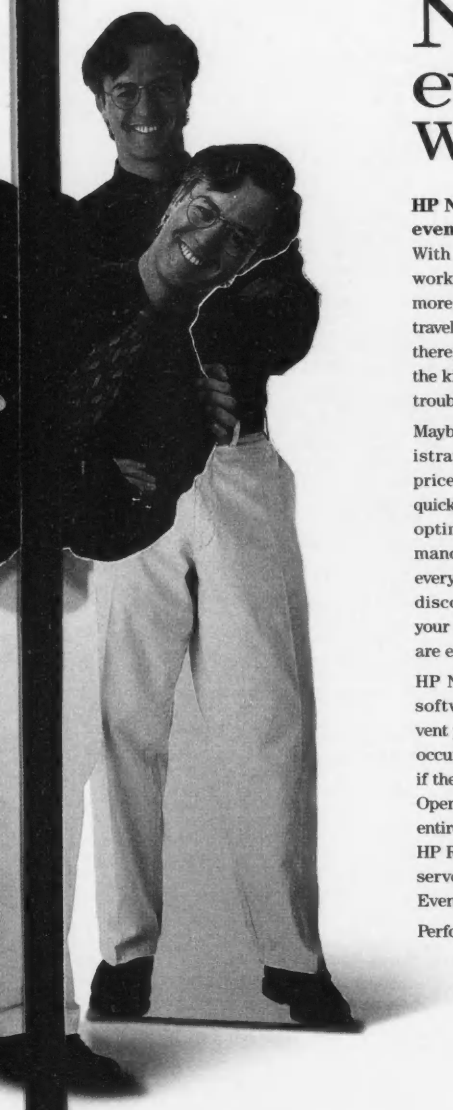

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Maybe that's why so many network administrators are turning to the affordably priced lineup of HP NetServers. Take a quick look, and you'll find optimized price/performance servers to match every need. But you'll also discover how to answer your need for servers that are easier to manage.

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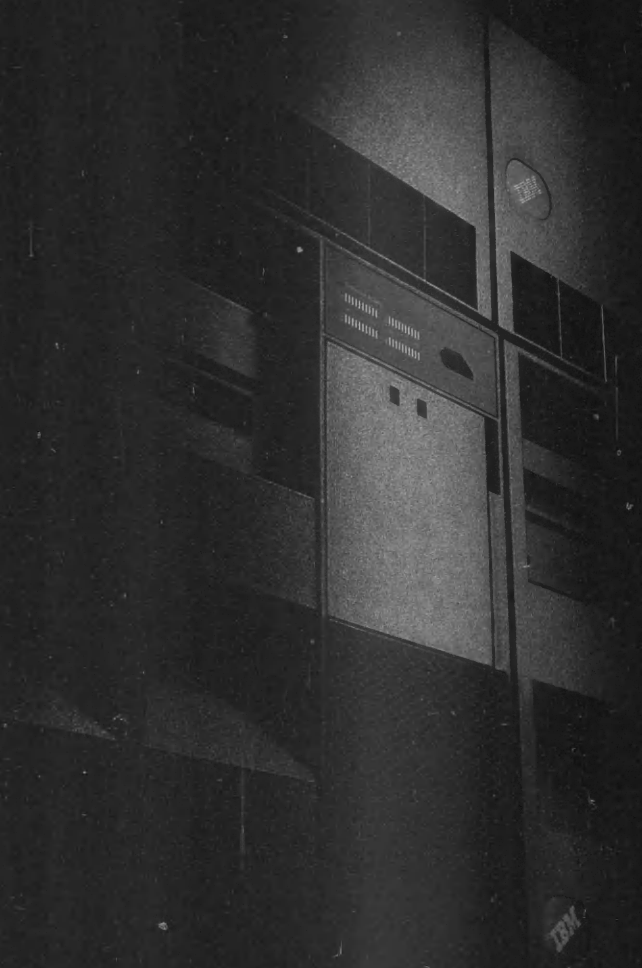

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Northrop's conversion project takes flight

Commercial Aircraft Division switches from legacy system to Unix-based operation

By Jean S. Bozman
HAWTHORNE, CALIF.

When Northrop Grumman Corp.'s Commercial Aircraft Division logs off its mainframe applications for the final time next month, it will serve as a downsizing model for other departments in the $8.25 billion aerospace giant. The division's move to open systems may save as much as 60% in ongoing information systems costs, according to some company estimates.

"If one goes, it'll be a domino effect," predicted Jim McCann, director of information technology management at Northrop Grumman. But first, there will be a formal evaluation of the project, which converted legacy applications from mainframes and minicomputers to Unix applications running on Hewlett-Packard Co. servers and Oracle Corp. 7.0 relational databases.

The aircraft division's yearlong conversion of legacy applications as well as operations of the former Grumman Corp. in Bethpage, N.Y., will be closely studied by the military aircraft divisions that build the B-2 Stealth Bomber and portions of the F/A-18 aircraft.

Planning ahead

The open systems initiative began last year before $5 billion Northrop acquired $3.25 billion Grumman in May. "We put together an information technology plan for the corporation last year, the objective of which was to lay out our strategy for moving from the mainframe to distributed systems," McCann explained.

Cost savings was a strong motivation, but there were reservations about industrial-strength Unix software. "We wanted to prove to ourselves that we could do this and operate in this environment," McCann said. "Certainly, we went into this with the intention that we wanted to reduce costs not only in [data processing] costs but by having more efficient business processes."

Project leader Joe Dugan *oversaw Northrop's conversion effort*

FYI

Northrop/Grumman merger date: May 1994
Revenue: $8.25 billion for Northrop and Grumman combined in 1993
Employees: 44,000
IS employees: Roughly 2,000

The aircraft division, which makes the 153-ft-long main fuselage for the The Boeing Co.'s 747 aircraft, will run its business on eight HP 9000 Series 800 Unix machines used as Oracle database servers and 20 HP 9000 Series 700 workstations that run the firm's manufacturing and financial applications. The aircraft division — which has 1,500 employees and accounts for about 8% of Northrop Grumman's IS budget — purchased $7 million worth of HP equipment and software for the project.

Re-engineering is bound to reduce the company's inventory of six IBM and IBM-compatible mainframes. McCann plans to reduce that number to save IS costs as some of the mainframe leases run out. "We absolutely want to get rid of at least two in the next couple of years," he said. The largest portion of ongoing IS costs stems from maintenance of aging mainframe code and mainframe data center operations, McCann said.

The aircraft division's applications only needed one-tenth the MIPS of one IBM ES/9000, McCann said. And many of the aging IBM mainframe applications were replaced by off-the-shelf software, including the Oracle Financial and Manufacturing software suites.

But programmers still had to rewrite a factory management application that first ran on a Digital Equipment Corp. VAX computer and was ported to another Unix machine, as well as a mission-critical paperless factory system that ran on a Tandem Computers, Inc. machine with 1 million lines of Cobol code.

User participation

Users were brought into the design process to ensure applications met business needs as well as, or better than, the legacy software. After the conversion is completed, only eight employees will help run the systems.

"The users are getting a little more involved in systems issues," said Mike Bek, co-project manager for the Oracle-based manufacturing applications. "We're setting up our own user profiles for data access and helping end users with questions about their applications."

To use the packaged Unix applications, programmers had to convert data stored in the IBM mainframe's IMS database to the Oracle 7.0 relational database. That process took two months, said Pattie Geffon, an automated systems analyst who helped manage the project.

Rewriting the custom legacy systems was accelerated through the use of rapid application development planning techniques, said Joe Dugan, business systems program manager at the aircraft division. Dugan was project leader for the 18-person conversion effort. Additional help came from Oracle software consultants and a team from International Integration, Inc. in Los Angeles.

ON SITE

Northrop Grumman Corp.
Hawthorne, Calif.

Challenge: To reduce IS costs by downsizing legacy mainframe applications to Unix-based servers running relational databases.

Strategy: To use rapid application development planning techniques to speed the conversion of legacy applications from IBM mainframes and Tandem Computers, Inc. machines.

Results: The transition from the IBM mainframe is expected next month. Applications will move closer to users, who will help administer the Unix systems. Multiple HP Unix servers, workstations, X terminals and an Oracle 7.0 database have been installed. HP's OpenView network management system will be used.

Network operating systems

Novell takes bite out of NetWare upgrade costs

By Elisabeth Horwitt

Novell, Inc. recently announced a series of promotions designed to coax users into moving up the network operating system ladder from the virtually defunct NetWare 2.x to NetWare 3.12 — and from there, moving up to the enterprise-oriented NetWare 4.02.

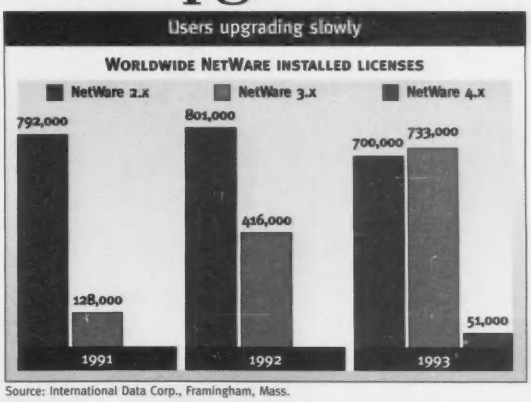
The promotions followed an initiative announced earlier this year that offered users a 25% discount if they upgraded to NetWare 4.x or 3.x by July 31.

As part of this latest round, Novell did the following:

- Reduced the cost of upgrading to either NetWare 3.x or 4.x by an average of 15%.
- Reduced the cost of upgrading to NetWare 3.x or 4.x from rival network operating systems, such as IBM's LAN Server, Microsoft Corp.'s Windows NT Advanced Server and Banyan Systems, Inc.'s Vines.
- Added Novell's Personal NetWare and other peer-to-peer products to the upgrade program.
- Offered users the option of consolidating user licenses when they upgrade. For example, combining four 25-user NetWare 3.12 licenses with a single upgrade to a 100-user NetWare 4.02.

Novell also announced that users who purchase an upgrade to NetWare 3.x or NetWare 4.x (10-user version or higher) by Oct. 31 will receive a free copy of Novell's GroupWise 4.1. The product was formerly WordPerfect Office, the workgroup and messaging NetWare Loadable Module sold by recent Novell acquisition WordPerfect Corp.

The CW Guide to Network Operating Systems: page 88.



Source: International Data Corp., Framingham, Mass.

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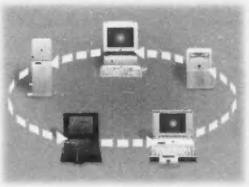

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When's the best time to upgrade your network and get a $4,700 workgroup productivity pack, Free?

Lotus opens books on SmarText 3.0

By Tim Ouellette

SmarText 3.0, Lotus Development Corp.'s electronic book software, has hit the streets offering added Notes integration, table support, customization capabilities and multimedia support.

SmarText 3.0, an upgrade to SmarText 2.0, provides users with on-line access to large manuals in a book format complete with text, graphics, a table of contents and hypertext links. New features include integration with Notes, support for tables created in word processing applications, support for Microsoft Corp.'s Object Linking and Embedding, enhanced viewing customization tools and an improved bookcase for document storage.

Abelard Controls in Tucson, Ariz., a systems integration company, uses SmarText to prepare applications that would guide operators through a manufacturing process in an emergency.

"We have piles of documentation," said President Mitch Dobson. "It is very easy to stack it all up on a table 3 to 4 feet high."

With operator staffs low or training budgets slashed, Abelard's clients find the availability of a quick, on-line resource of information on how to handle urgent situations important, Dobson said.

According to Lotus, SmarText takes documents from any word processing application and creates an electronic book with full text-search capabilities and formats for the computer screen.

Hewitt and Associates, a consulting and actuarial firm in Lincolnshire, Ill., has used almost every import function that SmarText 3.0 allows, said Alex Geron, a member of the firm's Technology Evaluation Group.

Hewitt employees manage pension plans that average about 1,500 pages each. The company installed SmarText to consolidate these plans and related documentation into electronic books. Geron said each employee now has access to and manages up to 200 plans and needs only a minute to answer a client's question, compared with five minutes for a manual search.

"SmarText is going to start being used more when people realize how much information overload they are having," Geron said.

Worldwide market

Along with Folio Corp.'s Views, Electronic Book Technologies' Dynatext and IBM's BookManager, SmarText 3.0 is part of the estimated $32.8 million publishing segment of the worldwide text retrieval market, according to Delphi Consulting Group in Boston. Revenues for the segment are expected to reach $44.2 million a year by 1995.

Carl Frappaolo, an analyst at Delphi, noted that the segment's growth depends on how quickly organizations realize they need publishing applications as opposed to industry-specific applications.

With Notes integration, Lotus hopes to provide a complete package for companies to deliver and view documents on-line. SmarText 3.0 lets users create links from the large, archival SmarText documents to Notes documents. From Notes, SmarText documents can be launched or distributed among workgroup users.

SmarText 3.0 is available now and is made up of two components: Builder, which converts documents into electronic book format, and Reader, which lets users view the books on-line. Builder sells for $495; Reader costs $99. A CD-ROM version is due out later this year.

Briefs

EDS wins Hughes deal

Electronic Data Systems Corp. won a five-year deal to provide distributed systems management for fellow General Motors Corp. unit **Hughes Space and Communications Co.** EDS will manage 4,000 desktop systems and Hughes' LAN-based computing environment. EDS said it beat out AT&T Corp., Computer Sciences Corp., Digital Equipment Corp., Hewlett-Packard Co. and IBM's Integrated Systems Solutions Corp. subsidiary. It did not disclose the value of the deal.

PictureTel goes continental

IBM Europe signed on to market **PictureTel Corp.**'s desktop videoconferencing system in eight European countries, including the UK, France and Germany. The PictureTel system includes IBM's Person to Person information-sharing software, which was developed at the company's software lab in Hursley, England.

SGI visits Disney

Silicon Graphics, Inc. (SGI) announced that its Unix servers and graphics accelerators were used to create an interactive virtual reality show set to open at **The Walt Disney Co.**'s Epcot Center in Orlando, Fla., this fall. The interactive amusement ride, based on Disney's animated feature film *Aladdin*, was created with systems previously used to build flight simulators, said Mike Ramsay, senior vice president of SGI's Visual Systems Group.

Percussion Software has introduced Notrix 1.0 and Notrix Composer 1.0, software for Notes.

According to the Boston firm, Notrix lets users manipulate Notes data without the Notes application programming interface or C programming. Instead, it implements an extended version of IBM's Rexx language that works with Notes.

Notrix Composer 1.0 is a nonprogramming tool for defining bulk data movements between enterprise databases and Notes. The product lets users map fields, select records, calculate new fields and determine job frequency.

Notrix 1.0 costs $3,495, and Notrix Composer 1.0 costs $4,495.

▶ *Percussion Software*
(617) 267-6700

Delphi Consulting Group has announced The Workflow Factory, a product-independent diagramming tool for workflow, re-engineering and business process redesign.

According to the Boston company, The Workflow Factory handles sophisticated graphical definition and captures all the data necessary to define a process using tables linked to each element of the diagram. All information accumulated about processes can be exported to a workflow database or to a spreadsheet or other tool for more analysis.

The product ships with boilerplate workflows, preconfigured icons and tables analogous to workflow.

The Workflow Factory costs $395.

▶ *Delphi Consulting Group*
(617) 247-1511

Desktop Data, Inc. has announced NewsEdge/Notes Release 2.0, news processing software for enterprise applications in Notes.

According to the Waltham, Mass., company, NewsEdge/Notes Release 2.0 lets Notes users define custom news tracking criteria and receive the most current information on their PCs. The news can then be integrated into Notes databases and applications.

Custom electronic subscription templates are provided for specific publications to provide the look and feel of the actual paper or magazine. The package includes access to numerous news services.

Prices range from $27,000 per year for 50 users to $125,000 per year for 5,000 users.

▶ *Desktop Data*
(617) 890-0012

Delrina Corp. has announced WinFax Pro 4.0 for Networks, workgroup fax software.

According to the Toronto firm, WinFax Pro 4.0 for Networks lets users send, receive and manage faxes from their PCs using one or more standard fax modems on a network.

The product lets PCs act as standalone clients so they can access network fax modems as if they were hardware connected to the PC. Electronic-mail messages can be managed the same way as faxes through support for Microsoft Corp.'s Mail and Lotus Development Corp.'s CC:Mail.

WinFax Pro 4.0 for Networks operates in either a dedicated or nondedicated server environment.

Prices range from $179 to $4,299, depending on the number of users.

▶ *Delrina*
(416) 441-3676

Image Business Systems Corp. has announced IBS Flowmaster, workflow software.

According to the New York firm, IBS Flowmaster lets users design, manage and control mission-critical business applications.

The product is made up of FlowManager and FlowController. FlowManager automates and manages business processes. FlowController provides tools for runtime work load and performance monitoring, work load balancing and resource utilization.

IBS Flowmaster runs on the IBM RS/6000 and includes object-oriented paradigms, user-defined workflow attributes and dictionaries and more than 50 high-level workflow application programming interfaces.

Prices range from $40,000 to $150,000, depending on the number of users.

▶ *Image Business Systems*
(212) 696-2500

American Power Conversion has announced PowerChute Plus for Notes running on Novell, Inc. NetWare servers.

The West Kingston, R.I., company said PowerChute Plus for Notes running on NetWare servers provides unattended shutdown of Notes servers in the case of an extended power interruption.

Other features include automatic uninterruptible power supply (UPS) testing, configurable UPS control and scheduled system shutdowns.

PowerChute Plus for Notes running on NetWare servers costs $99.

▶ *American Power Conversion*
(401) 789-5735

Product shorts

On Demand Software, Inc. has introduced WinInstall 4.0, network application distribution software. The product lets users select applications from a scrollable list and then installs a Windows start-up or sends applications as self-installing attachments via electronic mail. Cost: $495 for unlimited users. On Demand Software, Naples, Fla. (813) 261-6678.... **SQL Software, Inc.** has announced PCMS Helpbench, a help desk product for Notes targeted at internal help desk and customer-support users. It tracks customer calls and problems and can be used in the testing cycle to manage incidents and defects. Cost: $795 per user. SQL Software, Vienna, Va. (703) 760-0448.... **VocalTec, Inc.** has announced VocalChat 2.0, office communication and messaging software. VocalChat 2.0 includes an audio conferencing service. Cost: $239 per 10-user license. VocalTec, Northvale, N.J. (201) 768-9400.

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What's more, when you upgrade any network to NetWare 3.12 or 4.02 for ten or more users by October 31, you'll get Novell's workgroup productivity package worth $4,700—free. The pack includes GroupWise™ (formerly WordPerfect Office), the most comprehensive E-mail, scheduling and calendaring, task management program, plus a Message Server NLM and MHS NLM Gateway. So call 1-800-BUY NOVL or your local Novell reseller to find out more. Because there's never been a better time to upgrade your network and workgroup productivity.

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Commentary

Stan Schatt

Developing for the customer: What a concept

Have you ever asked yourself why computer networking companies seem to be so out of touch with your firm's particular needs? I thought so. Remember the movie *Field of Dreams*, in which a young Iowa farmer plows his cornfield under, convinced that if he builds a baseball field, Shoeless Joe Jackson will come to play ball?

Today, a field of dreams mentality pervades major networking companies. Engineers develop products with the conviction of religious zealots, believing customers will clear store shelves and clamor for more once these products are released. Their credo is, "Build the product, and the customers will come."

What litmus test do these product developers use to determine the success of a product? Themselves, of course. Imagine a Generation X engineer developing a new file server or PC-based videoconferencing system. "George, isn't this great? The server is running at 100

Schatt, *page 60*

Cisco sees switching in its future

Router vendor's president discusses $1B firm's product mix, financials

"Explosive" may be too tame to describe the growth of Cisco Systems, Inc. The Menlo Park, Calif., router provider closed its fiscal year late last month with revenue expected to top $1 billion, compared with $5.5 million just six years ago.

Cisco's feisty and energetic president, John P. Morgridge, has presided over most of that growth, including the 1994 acquisitions of switch maker Crescendo Communications, Inc. and low-end router vendor Newport Systems Solutions. However, Cisco's stock bottomed out last month following cautious forecasts for fourth-quarter earnings. Morgridge recently spoke with *Computerworld* Editor Paul Gillin in Cisco's Palo Alto, Calif., facility.

Cisco's John P. Morgridge: *'We will emphasize switching products over the broad scale'*

Q: How do you plan three years out in a business like yours where all bets are off right now?

A: It's not possible to see three years out in our industry. You have to acquire fundamental capabilities to compete in the market as it changes. The Crescendo and Newport acquisitions were critical to that. The product life cycles are about 18 months right now. We have to develop the tools to get products and processes out quickly. For example, we now have the capabilities to [get products certified in] parallel all over the world. That can save six to 12 months of time in some countries.

Q: How will you cover yourself as the hub, router and switching markets converge?

A: Switching technology will be an important part of the fabric of the future. It's important that we develop products there. But switching is as much a threat to shared backbone hubs as it is to the routing environment. As we build switched fabrics, the requirements of routing are still applicable. Remember that we don't just route a protocol; we take a protocol designed for one environment and make it work in another environment.

Q: How aggressively will you try to exploit confusion surrounding the Wellfleet Communications, Inc./SynOptics Communications, Inc. merger?

A: The Wellfleet/SynOptics relationship is a challenging factor in our relationship with many of our current customers. On a surface level, this consolidation makes a lot of sense. At a product level, it's not so natural. We've had a lot of experience embedding products with our own, like Wellfleet and SynOptics are going to have to do, and we've found that the bigger the project, the harder it is to pull off and keep all the pieces at a reasonable level.

My sense is we'll see a convergence of routing technology around switches and a shared environment moving from hubs into switches. Hub and switch companies will converge. This merger presents opportunities and challenges. We've had a working relationship with SynOptics, and if this destabilizes it, it makes it very hard for the customer.

I look at this like the divorce of two friends. Once they divorce, it's very hard for you to maintain a relationship with either one. Yes, we see this as an opportunity, particularly where the customer has not made a hard decision on a hub. We can say, "Hey, we provide a choice. With those guys, you don't get that."

Q: You've said in the past that your strong point is focus. How can you keep focused if you have to compete in all those markets?

A: We are not going to attempt to develop a broad-based hub

Morgridge, *page 60*

Interactive TV comes to public broadcasting

By Ellis Booker

By the middle of next month, viewers of ETV, Vermont's public television station, will be able to log onto an electronic resource and download news and information related to their favorite programs. They will also be able to fetch community interest bulletins or use Internet mail.

ETV Online is the first test of PBS Online, a package of electronic services being developed by the Corporation for Public Broadcasting in Washington.

"Within a year we'd like to have 400 subscribers, which would include private individuals and schools," said Ann Curran, ETV's marketing and communications manager in Burlington, Vt.

Almost 200 public television stations around the country already communicate with one another over an internal system called PBS Express, which came out last November. The interactive PBS Express replaced an early broadcast system that supported only text transmissions.

Another system, called PBS Learning Link, offers education-related information targeted at teachers, child-care providers and parents. It is offered by 22 stations to some 37,000 users. These sites will roll over to the PBS Online platform this year.

Act locally

"From the national level, our content focus will be things linked to our programs," said Molly Breeden, PBS Online marketing manager. The most interesting interactive applications are being developed in conjunction with the local stations, she said.

WMHT in Schenectady, N.Y., for instance, has helped develop Baseball Online, which will link to an upcoming series on America's favorite pastime. Baseball Online will contain interactive trivia as well as lesson plans and research data for students.

"We want our producers to evolve from video producers to content providers," Breeden said.

"We see it as a really important wedge," Curran agreed.

PBS Express, Learning Link and PBS Online are the fruits of a broader network upgrade at PBS affiliates, which added VSAT terminals and Apple Computer, Inc. Quadra 650 servers for about $40,000 per station.

The PBS Online pilot will start small, with just four to eight 14.4K bit/sec. modem lines. Subscribers will be able to log on using conventional communications software. ETV is also testing a graphical user interface-based product called FirstClass from SoftArc, Inc. in Scarborough, Ontario.

ETV also plans to offer Internet mail service, although not full Internet access. About eight of the 22 PBS affiliates that now offer the Learning Link application have plans to offer direct Internet access.

Pricing for ETV Online has yet to be determined, but station officials said it will be "reasonable." Also, the service might use the station's current network infrastructure — which connects four transmitters — as a way for subscribers to dial in without incurring long-distance charges.

Community computing

In April, the Corporation for Public Broadcasting, in partnership with US West, awarded $1.4 million to 12 community computer networking projects. The awards, chosen from 90 proposals submitted by local public stations in 38 states, are targeted at spurring community-based information networks.

Typical is the proposal of Omaha Free-Net, which will provide various services including Internet access to more than 300,000 citizens in Greater Omaha. Among the dozens of partners in the Free-Net project are schools, arts councils, medical centers and museums.

— Ellis Booker

SNA traffic gets priority in router upgrade

By Suruchi Mohan

■ Hypercom Network Systems is offering an upgrade to its Integrated Enterprise Network router designed to address the priority allocation problem that often plagues branch networks when traditional SNA and LAN traffic are combined.

Called Dynamic Queue Manager (DQM), the software combines three priority allocation methods — scheduled priority, dynamic priority and bandwidth allocation — to ensure that time-sensitive SNA traffic goes ahead of other traffic, such as TCP/IP or other LAN-based traffic.

"DQM ensures that LAN and SNA traffic can be transported over the [wide-area network] reliably and fast," said Paul Wallner, vice president of engineering at Hypercom in Phoenix.

Like oil and water

Unlike LAN traffic, which goes across the network in bursts and crowds out anything else, SNA sessions cannot brook delays, said Lynn Nye, president of NetResults, a consulting firm in Portland, Ore. SNA sessions are lost if acknowledgment is delayed, so they need to be prioritized.

"Mix the two [LAN and SNA], and LAN traffic can choke SNA," Nye said. "This is the biggest issue in the industry for branch networking."

Neil Anderson, chief operating officer of The Tolly Group, an independent testing and consulting organization in Manasquan, N.J., agreed that adding some of the most voluminous traffic, such as that generated by server backups, is the least time-critical. On the other hand, airline traffic, which is typically 3270-type traffic, is extremely dependent on quick response time. "If you can prioritize traffic, you can make sure the 3270 frame goes first and the IP or IPX traffic goes later," he said.

Priority maintained

The DQM software works with the Hybrid Transport Manager, a multiprotocol transport method used by Hypercom's routers that supports deterministic and nondeterministic routing. Additionally, DQM makes priority information available to all the routers on the network so traffic keeps its priority as it goes along the network. The upgrade will be available free of charge.

Anura Guruge, a system consultant in New Ipswich, N.H., said this announcement puts Hypercom "in the same league with Cisco and Proteon."

Schatt

CONTINUED FROM PAGE 59

MHz and has a built-in CD-ROM drive. I'd love to have one of these in my house to run the new checkbook program. The public is going to love this."

One of the major problems for managers today is that the networking industry has evolved to the point that the only way it can reach the millions of customers who need equipment is to use a channel of value-added resellers. What this means is that hardware and software manufacturers don't deal directly with end users.

> People attracted to this industry love the technology and fail to spend enough time looking at the business needs of their potential customers.

In the past few months, I have had several conversations with networking companies that were convinced that customers were using their products in certain ways but had only their own gut feelings to back up these conclusions. One software company insisted that its installed base needed certain features found only in a new version of its product, the migration to which would require considerable expense and effort.

Based on data collected by my company in more than 250,000 interviews with end users, I tried to reason with them that there was no hard evidence that these customers were even tempted to move to the new program. I pointed to these customers' purchase plans for the next year, which showed no trend toward product migration.

My audience still was not convinced. They were so deeply entrenched in their company's culture that they were completely isolated from their customers. Almost like a religious cult, this very bright group of networking professionals looked only among themselves for validation of their convictions. They even ignored their own sales figures.

Soap companies, automobile manufacturers and even beer companies spend millions of dollars each year conducting primary research. They interview potential customers in malls, over the phone and by mail to find out what these people want in the way of new products. I'm convinced that the reason the networking industry lacks the market research sophistication of other industries is that people attracted to this industry love the technology and fail to spend enough time looking at the business needs of their potential customers.

Not too long ago my company examined data from several thousand interviews with Fortune 1,000 companies and concluded that less than 18% of the PCs at sites with LANs could run Windows NT. I bet there isn't a product developer at any major networking company that still uses an Intel 286- or 386-based PC, yet there are millions of these units still performing useful functions at Fortune 1,000 companies. Intel has been predicting a world filled with Pentium-based PCs, but has it asked potential customers if they need the power and performance of this chip or if they are willing to pay the price?

The British poet W. H. Auden wrote a piece several years ago, "The Unknown Citizen," in which he describes a government that blithely plans the future of its citizens based on its own statistics and doesn't consider the feelings or wishes of the citizens. The poem concludes with this comment about the unknown citizen:

"Was he free? Was he happy? The question is absurd:

Had anything been wrong, we should certainly have heard."

In networking, customers need to make themselves heard.

Schatt is a LAN service director at Computer Intelligence/InfoCorp in La Jolla, Calif.

Morgridge

CONTINUED FROM PAGE 59

line. We will emphasize switching products over the broad scale, using routing expertise to make those products more scalable. There's also a natural integration of access routing and hubbing going on, and we'll have products there. But over time, the definition of a hub will change, so we'll partner with others to ensure the availability of [hub] products to our customers.

Q: What did you learn from your experience of confronting IBM directly on Advanced Peer-to-Peer Networking?
A: We were a little late in declaring victory when they backed down on most of the issues. We should have realized we wouldn't win 100%, but we did get input into their development process, and that 80% we did get was very worthwhile.

Q: Your stock is trading near the 52-week low. Why are investors hitting you so hard?
A: I guess that makes it a great buy, huh? (Laughs). Because of the volume our stock trades, you get a lot of short-term activity, including people selling short. There are a lot of people trying to make money off our stock no matter which way it goes.

Q: How closely do you watch the stock price?
A: I don't watch the stock closely myself, but of course it is important to our employees, many of whom have a lot of stock option compensation. I look at the fundamental things. To be successful in the stock market, you have to have consistency. If you're unpredictable on a quarterly basis you don't get much valuation. That's why [Cabletron] has a better value than [SynOptics], because they're more predictable.

Q: Why is Wall Street being so hard on you?
A: We've made a huge drive to shorten lead times and that has provided more service to customers, but it has also caused some short-term unpredictability.

Q: How important is your relationship with Novell to your future?
A: They are part of our future, as is Microsoft, Banyan, Apple, perhaps even Compaq. A good strategic relationship is a continuous stream of successful tactical activities. Saying we'll cooperate on engineering and development for five years isn't much use. I'd rather have three successful tactical projects than one five-year cooperative agreement.

Q: You just turned 61, and you have said that you don't expect to be at Cisco when you're 67. How much longer do you intend to stay?
A: It's not my intent to stay that long. Ten years is too long to be with one company these days. One of the great things about Silicon Valley is that we're not a single culture. We're a collection of cultures. Chaos and change is very important to the lifeblood of the company.

Q: Will you have a clearer line of succession than Ray Noorda had at Novell?
A: We've recently made some moves to broaden [Senior Vice President John] Chambers' responsibility. That should tell you something.

New product

Worldtalk Corp. has introduced the Worldtalk 400 Access Unit for Lotus Notes, an integrated messaging gateway.

According to the Los Gatos, Calif., company, the Worldtalk 400 Access Unit works in conjunction with the Worldtalk 400 messaging integration system. Notes users can send and receive messages, documents and applications to and from users of other electronic-mail packages.

The product provides connectivity to these other systems via the company's Worldtalk 400 server, which runs on a Hewlett-Packard Co. HP 9000 or Intel Corp. platform. Both senders and receivers of E-mail can work in their native formats and addressing schemes without worrying about whether the message is going to or coming from a foreign system.

The Worldtalk Access Unit for Lotus Notes costs $2,500.

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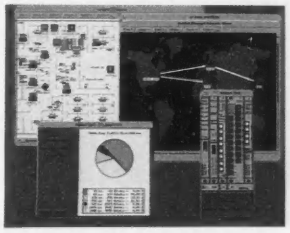

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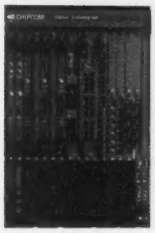

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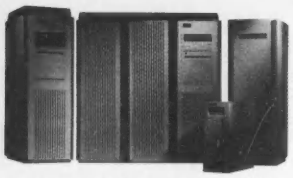

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Analysts say big-iron sales will level off

By Craig Stedman

1993: The mainframe is dead. 1994: The mainframe is alive and kicking. 1995: A little of both?

There is probably no need to dust off any dinosaur jokes, but several mainframe analysts are forecasting that the revival of big-iron sales, which began late last year, will moderate by year's end as customers who delayed purchases in previous years fill their capacity needs.

"It's going to quiet down" in 1995, said Susan Middleton, a senior analyst at International Data Corp. in Framingham, Mass. "There's been a healthy stabilization of the market, but we're still seeing so many people offload the applications that can be off-loaded to other platforms."

No comparison

No one is suggesting that users will again hear how shops plan to uproot their mainframes and move everything to client/server systems. The technical shortcomings and high integration costs that slowed the migration to smaller platforms are not likely to disappear, users said.

"There hasn't been anything built yet that equals the mainframe's server capabilities," said Bill Finefield, an administrator at the Defense Information Systems Agency's information processing center in Richmond, Va. The processing center upgraded its three mainframes late last year and early this year, and Finefield said he and his staff are "keeping our eyes out to upgrade them again if we can save money and increase capacity as well."

Decreasing revenue

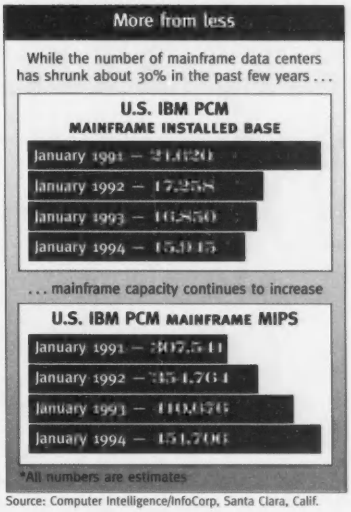
Mainframe purchases have indeed been relatively brisk this year, although revenue continues to drop because of price reductions. Jerome York, chief financial officer at IBM, told analysts in July that its shipments of mainframe MIPS increased 28% in the second quarter, compared with a year ago. Revenue fell by about 10%, but that figure was much smaller than IBM executives expected at the start of the year, York added.

With IBM still unable to meet demand for ES/9000 systems because of earlier manufacturing cutbacks, the company is sold out of mainframes "well into the fourth quarter," York said. Amdahl Corp. also cited better-than-expected mainframe revenue as a key factor in its return to profitability this year while noting that second-quarter MIPS shipments increased between 10% and 20%.

But even Joseph Zemke, Amdahl's president and chief executive officer, voiced doubts about whether market conditions will remain flush. "We don't know how long the bubble is going to last," Zemke said in a recent teleconference. "The question we're trying to answer is how much of this is pent-up demand and how much is a surge that can be sustained."

Analysts gave much of the credit to pent-up demand, saying capacity needs are forcing the hands of customers who had been exploring

Mainframes, *page 66*



Source: Computer Intelligence/InfoCorp, Santa Clara, Calif.

Vendors rely on honor system to enforce per-user prices

By Kim S. Nash

Per-user pricing for databases from Informix Software, Inc. and Oracle Corp. is largely unenforceable, the vendors acknowledged recently. In fact, both vendors rely on users' honesty to comply with database license contracts that stipulate a certain number of users or specifically named users may access a given database.

Certainly, other software and operating system providers lack a means to easily and routinely patrol per-user contract abusers, but the situation is coming to the fore for database users as applications — and end users — are increasingly split among processors.

No standards

Variations of usage-based pricing methods have been in the offing for a number of years, said Herb Edelstein, an analyst at Euclid Associates in Potomac, Md. But the schemes have been stalled because of the lack of a standard usage measurement.

That problem still exists, but users have recently forced the hands of database makers in demanding the simplicity inherent in per-user pricing, Edelstein said.

Indeed, Informix shifted to per-user pricing early this year for its Informix-OnLine database, and Oracle started per-user fees with the shipment of Oracle 7 Release 7.1 last month [CW, June 27]. But neither database contains mechanisms for enforcing per-user contracts.

Informix plans to leave the issue ostensibly in the hands of operating systems vendors, said Tim Shetler, Informix's vice president of product marketing. Some firms, such as Hewlett-Packard Co. and Silicon Graphics, Inc. (SGI), have begun embedding metering software into their Unix systems, but there is no widespread agreement about which metering technology to use, he noted.

Further, the user monitor built into HP's HP/UX and SGI's Irix may cause performance slowdowns in some applications, Shetler said. The monitor, IFOR/LS from Gradient Technologies, Inc. in Marlboro, Mass., was not designed to track named users, which is one of the most popular ways to use a database.

Gradient's product was originally intended to monitor a small number of concurrent users who check out a limited number of executable copies of a program, such as word processing applications.

"Checking in and out databases over a network ... would hit performance," Shetler said.

Deals abound

At least three software firms, including database companies, are talking with Digital Equipment Corp. about licensing its Polycenter Network Management Services, a Digital spokesman said, but no deals have been signed.

For Gradient, the situation is not a problem, a company spokesman said. This is evidenced by the fact that a "major" database vendor recently signed an as-yet-unannounced deal to license the product, the spokesman said.

He declined to identify the database provider, but it is rumored to be Oracle. Mike Hagen, head of pricing at Oracle, declined to comment.

Theory vs. practice

Regulating users can be a political hot potato. For example, a database could be set up to bar access to anyone trying to tap into it after 50 users with a curt message such as, "Your use of this database would violate licensing covenants. Don't try to steal software."

"What if the president of this user company happens to be that 51st user that day?" asks Jon Vemo, a database administrator at Electronic Transaction Corp. in Bothell, Wash. "Do you really want that to happen?"

"Per-user might be easier to understand, but it's still unclear how convenient it will be in practice," said Michael Higgins, technical support manager and database administrator at Byer California, a clothing maker in San Francisco.

Byer has converted half of its dozen or so Oracle database and tools licenses to per-user pricing so far, but that pricing scheme is not a given, Higgins said.

"I'm going to hold off ... until it becomes clear what the strategy is," he said. "I need to know more before I go overboard."

Burlington Coat Factory Warehouse Corp. in Lebanon, N.H., for example, runs Oracle databases and tools on six multiprocessing machines from Sequent Computer Systems, Inc. "All those processors can theoretically support umpteen users," said Mark Farnham, a database architect. "It would be an administrative nightmare to track all that."

The company opted for a site license several years ago and has no plans to change, Farnham said.

Per-user pricing — that is, pricing not bound to CPU type or brand name — will force some users to choose host hardware based on different factors, said Dave Ruiz, director of product marketing at Viewstar Corp., a database reseller in Emeryville, Calif.

Previously, a $9,000 price difference for Informix-OnLine on one Unix system vs. another system, for example, could cause a company to purchase the less expensive platform, Ruiz noted. But per-user "removes the database vendor a little further from the position of making even implicit hardware recommendations," he said.

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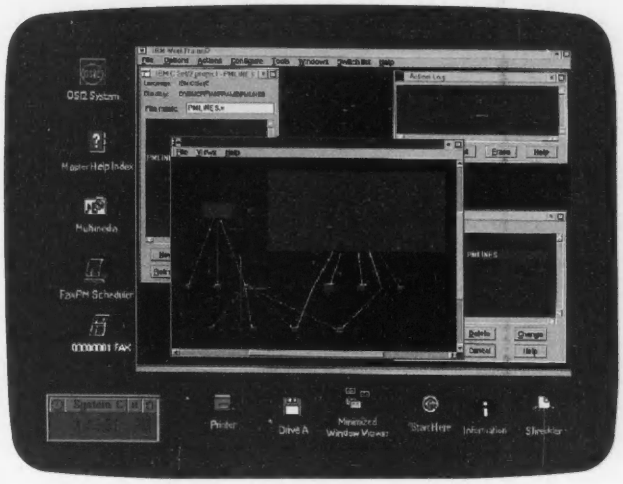

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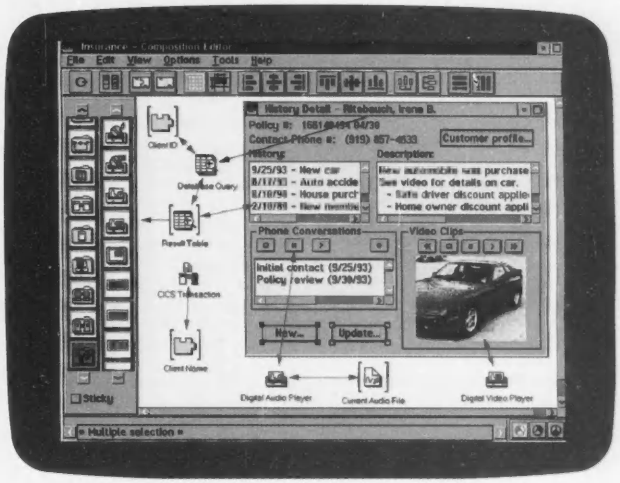

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DEC 2100 key to Digital Alpha AXP strategy

By Mary Brandel

When Digital Equipment Corp. announced its $1.7 billion quarterly loss at the end of July, it also had some good news to report: Sales of its Alpha AXP systems finally outpaced its VAX VMS systems by about $15 million, according to Salomon Brothers, Inc. in New York.

Alpha-based workstations represented three quarters of the $400 million spent on Alpha systems, said John Jones, an analyst at Salomon.

However, one server stands out from the crowd and is generally seen as responsible for the 90% increase in Alpha server sales: the $26,900, one- to four-processor DEC 2100 departmental server, also known as Sable, which was released in April.

In price/performance and in its price range, the 2100 is the king of symmetrical multiprocessing (SMP) RISC servers. Neither Hewlett-Packard Co. nor Sun Microsystems, Inc. has released a comparable box, although IBM is planning a fall release of "its Sable answer," said Terry Shannon, an analyst at Illuminata in Hollis, N.H.

"We were using VAX 4000s, and for literally one-third the price, you can buy an Alpha machine with even better performance statistics," said David Sacco, IS manager for the rolled products division at Alcan Aluminum Corp. in Cleveland.

"We're getting four 190-MHz-plus processors and a half-gigabyte of memory at a price point of $100,000 — that's hard to beat in the market today," said Peter Evans, senior research associate at the University of Miami.

Evans also values the 2100's scalability, particularly with an expected power boost to 275 MHz in the fall. In addition, the amount of disk storage is "tremendous," he said, and the wide bandwidth bodes well for the university's planned internal Asynchronous Transfer Mode internal network.

"We'd like to see a price drop in Digital's memory, but we will be expanding [the system] at some point," Evans said.

The 2100's choice of three operating systems — Digital's OpenVMS, the Open Software Foundation's OSF/1 and Microsoft Corp.'s Windows NT — appealed to Lawrence White, technical director of criminal justice information systems at the New Mexico Department of Public Safety. Although the department chose OSF/1 for now, "we didn't want to lock in," he said

Better pricing

Because the 2100 incorporates industry-standard components, such as Peripheral Component Interconnect and SCSI, its design is low-cost and modular.

For instance, the 2100 sells at half the price of the DEC 4000, an earlier Alpha server, but costs Digital one-third as much to produce, Shannon said.

In fact, 2100-type technology is expected to appear in future Alpha boxes. "Before the end of the year, it will have a ripple effect throughout the Alpha server line," Shannon said.

According to Renee Martinez, group manager for Alpha systems product marketing, the plan is to take the 2100's technology and create "a complete server product line from small workgroup to high enterprise," with the 2100 positioned as a departmental server.

The DEC 7000, an enterprise-level Alpha server, will be enhanced with 2100-like technology this fall, Martinez said, with more processors, "comparable I/O and exciting price/performance and scaling." The result, Shannon said, will be a 12-way SMP system that eliminates the DEC 10000 from the product line.

Customers can also expect a one- and two-processor workgroup server and more 2100 versions as well. Analysts had expected a desktop machine based on Sable to sell at less than $4,000, but such a system has not emerged.

In the end, Shannon said, the Alpha AXP line will be slimmed down to "something like four servers."

A year from now, a third generation of Alpha AXP servers will be more modular and will include more standards-based components, Martinez said.

"You can expect more synergy between the Intel PC group and the Alpha server group," he said. "Where we can share components and technology or have a more synergistic sales strategy, those are areas where you'll see dramatic progress in the next six to 12 months."

Chief Executive Officer Robert Palmer said in a recent teleconference that Digital also plans to introduce a four-processor Intel Corp. server. In fact, some analysts said Digital could incorporate Intel processors in a 2100-like box. "PCI and EISA are tailor-made for Intel componentry, so what would be the holdup?" asked Jonathan Eunice, an analyst at Illuminata.

Digital would not give specifics on 2100 shipments, but estimates say 3,000 to 3,500 have shipped since April — three times what was forecast, said Chris Christiansen, an analyst at International Data Corp. in Framingham, Mass.

Since its April release, unexpected demand has pushed lead times for the server to the 45- to 60-day range from the original two to three weeks, he said.

"That's pretty damn good for something that's only been out for a couple of months," Shannon said.

Second-generation Alpha

THE 2100 ARCHITECTURE WILL RIPPLE THROUGH DIGITAL'S ALPHA LINE

Entry-level system	Floor space (sq ft)	Power consumption (Kilowatts)	Maintenance (cost per month)	Price/ performance*
DEC 2100	8.3	880	$102	$4,401
VAX 6610	58.6	1,600	$482	$6,200
VAX 4600	8.3	340	$298	$5,725

*TpsA

Mainframes

CONTINUED FROM PAGE 63

client/server options or waiting for better economic times. That wave of buying is expected to start tapering off by year's end.

"It's a transient thing," said Charlie Burns, research director for large computer strategies at Gartner Group, Inc. in Stamford, Conn. "At IBM's previous manufacturing level, it probably could have supplied all of the pent-up demand for the whole year by now. So [its backlog] is being extended almost arbitrarily."

Help on pricing

Ironically, the tight supply has worked to the advantage of IBM and its mainframe cohorts on pricing, Burns and others noted. The cost of mainframes has declined at a slower rate this year than it did last year [CW, June 20], so users could benefit if demand eases next year.

However, Nancy Stewart, a senior industry analyst at Dataquest, Inc. in San Jose, Calif., said some of the expected drop-off in ES/9000 demand will reflect shifts to IBM's new CMOS-based parallel System/390 technology rather than diminished demand.

"I don't see CMOS as a savior, but it will help buck up the revenue streams of the mainframe vendors," she said.

Tom Loane, vice president of computers and communications services at Alamo Rent A Car, Inc. in Fort Lauderdale, Fla., agreed that the CMOS-based systems will push traditional mainframes "out of the market in the next 18 months or so." Whether there is a drop-off in mainframe buying during that time "depends more on the economy than anything else," Loane said.

Back and forth

Mainframe sales "will probably go to and fro for a long period of time as the open systems environment is either successful or not successful" in presenting an alternate choice, said Stan Johnson, IS director at Worldport LA, the port authority in Los Angeles.

But Johnson is one user who hopes he has bought his last mainframe. Worldport LA could triple the capacity of its Amdahl 5890M mainframe through upgrades but is looking instead to move its financial applications to client/server, starting with a cash expenditure tracking system scheduled to go on-line in March, he said.

Similar to a growing number of organizations [CW, July 25], the port authority plans to see if its mainframe can be used for backing up LAN data, Johnson said. "Otherwise, we might try to give it away to a Third World country somewhere," he joked.

What size is it?

It can be difficult to get a handle on the size of the mainframe market because the companies measuring it are not necessarily operating on the same wavelength. Dataquest predicts mainframe and supercomputer shipments will total 8,189 units this year, for worldwide revenue of $16.8 billion. International Data Corp. expects 2,559 units to be shipped, amounting to $22 billion in revenue. IDC said its revenue figure includes storage devices.

Briefs

CA gains interest in Newtrend

Computer Associates International, Inc. announced plans to exercise its right of first refusal and acquire the remaining interest in Newtrend, a 3-year-old banking software joint venture between CA and **The Newtrend Group**. In June, The Newtrend Group notified CA that it had solicited an offer from a third party for the joint venture. CA consequently notified The Newtrend Group that it will not join in the proposal to sell the company. Last year, CA filed a lawsuit in a Delaware Chancery court to dissolve the partnership and have The Newtrend Group return to CA the InfoPoint software it contributed to the joint venture.

IBM names Richter VP

IBM named R. Gene Richter vice president of worldwide procurement, with responsibility for all of its purchasing activities. Richter was previously executive director of procurement at Hewlett-Packard Co.

WHEN YOU THINK OF MASSIVELY PARALLEL PROCESSING, WHAT COMPANY COMES TO MIND?

(Okay. Time's up.
You can turn the page now.)

New Products

Tecsys, Inc. has announced the Elite Series 6.0, software for distribution and manufacturing organizations.

According to the St. Laurent, Quebec, firm, the Elite Series 6.0 lets users handle high-order desk traffic interactively, treat order lines individually and process each line as a separate order.

The product consists of 20 modules including Order Processing, Inventory Management, Forecasting/Requisitions, Purchasing, Sales Analysis and Financials. Each handles multiple locations, languages and currencies.

Elite Series 6.0 also lets any number of users retrieve information, color images, black-and-white schematics and database voice tracks.

Prices start at $26,000, depending on the number of users.

▶ *Tecsys*
(514) 333-0000

Integrated Software Design, Inc. has announced On-Tap/VMS for PostScript, bar-code and labeling software.

According to the Mansfield, Mass., company, On-Tap/VMS for PostScript integrates bar codes into any PostScript application running on Digital Equipment Corp.'s VMS operating system.

The user marks the data to be bar-coded with a set of trigger characters, and the product converts the data into any of the 15 sets of symbols available.

On-Tap/VMS for PostScript also works with any PostScript-compatible printer and operates as a PostScript program at the printer level.

Prices range from $19 to $34 per printer.

▶ *Integrated Software Design*
(508) 339-4928

Memorex Telex Corp. has introduced the 148X line of fixed-function 3270 displays.

According to the Irving, Texas, firm, the displays reduce energy consumption up to 95% during power down and exceed the U.S. Environmental Protection Agency guidelines for energy-saving computer equipment.

The 148X line offers vertical or horizontal dual-screen capability, allowing users to work directly between two active sessions. Users can migrate to a PC by replacing the logic unit with a CPU.

Prices range from $895 to $2,630.

▶ *Memorex Telex*
(214) 444-3500

Brio Technology, Inc. has announced DataPrism for IBM AS/400, an ad hoc query tool.

According to the Mountain View, Calif., firm, DataPrism for IBM AS/400 lets users use the capabilities of DB2/400 databases without having to learn programming or SQL commands.

The product is available for Windows and Macintosh and includes complete cross-platform compatibility with a single interface and file format.

Export users can integrate data into executive information systems, edit SQL statements, distribute predefined queries across the network and use a script language for control of all DataPrism functions from external applications.

DataPrism for IBM AS/400 costs $395 per user.

▶ *Brio Technology*
(415) 961-4110

NetSoft has announced NS/Queues and NS/Virtual Print, Windows-based client/server products for IBM's AS/400.

According to the Laguna Hills, Calif., company, the products run over NetSoft's NS/Router, a native Windows router for IBM AS/400 connectivity.

NS/Queues lets users send and receive messages to and from IBM AS/400 data queues in a native Windows environment.

NS/Virtual Print lets users access high-capacity printers attached to the IBM AS/400 server as though they were locally attached to the PC, without using terminate and stay resident programs.

Both products come bundled in NetSoft's NS/Midrange Bundle for $395.

▶ *NetSoft*
(714) 768-4013

Ascent Solutions, Inc. has introduced PKZIP MVS 2.1, a mainframe data compression utility.

According to the Dayton, Ohio, company, PKZIP MVS compresses data from 50% to 90%, depending on file type.

The product can convert record-oriented data into stream-oriented data and allows users to choose whether to emphasize the speed or degree of compression.

Prices range from $6,950 to $14,950.

▶ *Ascent Solutions*
(513) 885-2031

Product short

Design Data Systems Corp. has introduced SQL Time Financial Applications with multicurrency capabilities. The product lets users conduct a transaction in any foreign currency on which exchange rates are maintained for general ledger, accounts payable, accounts receivable, project accounting and purchase order modules. A reporting currency feature calculates in one currency and reports in another. Cost: $7,500 to $25,000 per module. Design Data Systems, Largo, Fla. (813) 539-1077.

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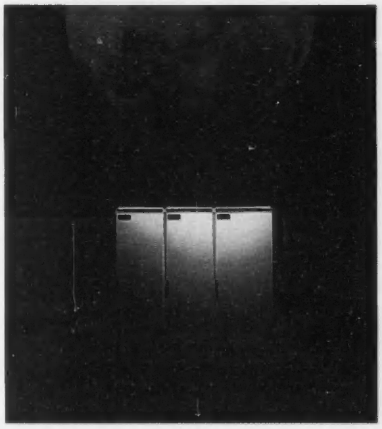

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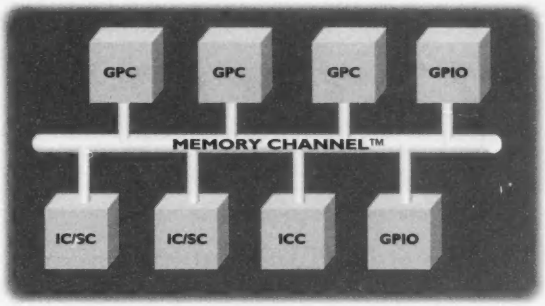

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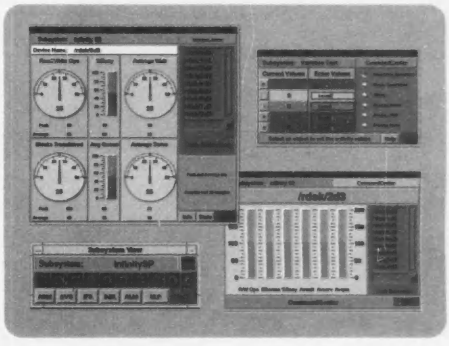

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Customers fret despite KnowledgeWare merger

Sterling pledges continued support for ADW

By Melinda-Carol Ballou

■ Corporate developers who use KnowledgeWare, Inc.'s tools are anxious about the company's acquisition by Sterling Software, Inc. The two companies announced a merger agreement earlier this month.

Those customers are concerned about the status of ongoing development and support for products such as Application Development Workbench (ADW). Many have made major investments in the computer-aided software engineering tools and have based their corporate development strategies on them.

Sterling will provide KnowledgeWare with much-needed financial relief, but it is not yet clear how KnowledgeWare's products will fit into Sterling's portfolio.

Officials from both companies have attempted to assure customers that support will continue for KnowledgeWare products such as ADW, but users said they are worried nonetheless. The officials said specific plans will be made by a transition team made up of management from both companies before the merger is finalized on Nov. 1.

Customers with significant commitments to ADW put the best face they could on the merger.

"I want to check it out further — we have concerns about it since we don't know what Sterling's plans are," said Rick Olson, senior programmer/analyst at L. L. Bean, Inc., a Freeport, Maine-based retailer. L. L. Bean has a substantial investment in corporate models built with ADW and had considered expanding its investment, but now the company may wait.

"There hasn't been a reassessment of that [position so far], and I don't know whether this announcement will trigger that or not," Olson said.

Olson and other customers said they felt blindsided by the merger because KnowledgeWare did not inform them directly. Some read about it in the press; others were informed by reporters looking for interviews.

Also worried about Sterling's plans for ADW but withholding judgment for the moment is Dan Clark, director of development at Blue Cross/Blue Shield of Virginia in Richmond.

"We're taking a 'wait-and-see' approach," Clark said, adding that he would like to see a clear commitment of resources to ADW development and a clearer direction from the company about how ADW will be integrated with other technologies, such as client/server products and R&O, Inc.'s Rochade repository.

Clark's organization has major investments in ADW. It has 14 applications under construction and two major systems — for claims processing and back-end output — that were built using ADW, he said.

"As long as the company is financially viable [under the merger] and they keep supporting ADW, we'll stick with it," he said.

Other ADW sites expressed hope that the investment would give KnowledgeWare the financial resources to improve ADW and result in better support.

"If Sterling has the capital to invest in ADW to improve areas of weakness, it could be a very positive thing," said Dan Jones, senior manager of information resource management at Norwest Mortgage, Inc. in Des Moines, Iowa. "But if they're buying them to bleed them and spin them off, that would be a problem." Sterling has acquired 23 companies with an effective, hands-off management style, according to several analysts, who nonetheless are reserving judgment.

Out of focus

A key issue for some corporate developers is what many perceive as a lack of focus: In the past two years, KnowledgeWare acquired six products in areas ranging from low-end client/server development to re-engineering to query and reporting.

Jumping ship

Some disgruntled KnowledgeWare customers have become a feeding ground for competitors such as Intersolv, Inc. and LBMS, Inc., according to some industry analysts and the users themselves.

First Union National Bank in Charlotte, N.C., moved from ADW in March and is currently making a transition to Intersolv's Excelerator II tools, according to Steve Gordon, systems development consultant at the bank.

Gordon cited a cumbersome and archaic KnowledgeWare product structure, a poor support relationship and the company's financial struggles as reasons for the switch.

"We feel it was a good move for us to get out when we did," Gordon said. "We were looking for a long-term strategic partner to do business with for years to come, and we did not feel that they were going to be there for us."

Independent Btrieve reenters database market with a little help from Novell

By William Brandel

Until now, Btrieve has had a surefire marketing and channel strategy: Build a database and let parent Novell, Inc. bundle it with NetWare. That way, Novell was responsible for the product's development, sale and movement through the channel — in short, its entire existence.

Things have changed for the Btrieve business unit, now known as Btrieve Technologies, Inc. (BTI), apparently for the better. BTI was spun off from Novell in April and now finds itself an independent entity for the first time since Novell acquired the Btrieve database management system from SoftCraft, Inc. in 1987. While BTI continues with the same development staff, it must now carve out a niche in a hotly contested database server market.

Most fledgling software companies should be so lucky to find themselves in BTI's "start-up" position. For one thing, despite BTI's independent status, Novell will continue to support it in a number of ways, said Dan Kusnetzky, research manager for Unix and advanced operating environments at International Data Corp., a market research firm in Framingham, Mass.

For example, Novell holds a 15% investment stake in BTI and a seat on BTI's board. Furthermore, Novell will continue to license Btrieve from BTI and bundle it with NetWare 3.x and NetWare 4.x.

"While the business changes, it still looks like it's always been," Kusnetzky said. "There is no disruption in the channel. They are still on Novell's price list, and they still are part of Novell's Technical Support Alliance."

NetWare plus

While BTI enjoys this close relationship with Novell (it is also located in Novell's Austin, Texas, office building), its flagship product's success is no longer solely tied to NetWare shipments or upgrades, Kusnetzky said.

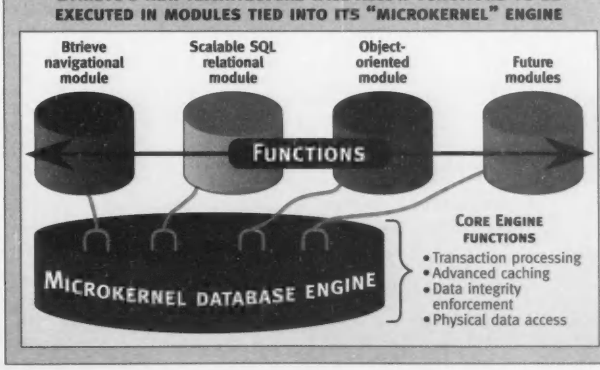
BTI is hatching a strategy that will enable it to exploit its 40,000-customer user base and at the same time branch out beyond NetWare. The strategy is based on a new architecture that will separate the database model from the common database functions (see chart), enabling users to plug function-oriented database modules such as SQL into a back-end Btrieve database engine.

This thinking sits well with at least one major NetWare and Btrieve customer, Chrysler Corp. Chrysler runs a factory information system on one Btrieve server and a statistical process control application on another at five Chrysler factories. Together, the LAN-based server applications serve as a factory diagnostics system, tracking 600 to 700 different machines and the role they play in the shops' assembly processes. The company plans to roll out Btrieve servers at seven or eight more factories, said Mark Wroblewski, project engineer at Chrysler.

Wroblewski said he views BTI as a direct competitor to Sybase, Inc. and Oracle Corp. in the SQL database market. He acknowledged that Btrieve's competitors have better development tools but noted that neither

Btrieve, *page 72*

BTRIEVE'S NEW ARCHITECTURE WILL ALLOW FUNCTIONS TO BE EXECUTED IN MODULES TIED INTO ITS "MICROKERNEL" ENGINE



Zinc unites environments, languages with one code

By Stuart J. Johnston

In the application frameworks arena, little Zinc Software, Inc. aims to make a difference by providing more functionality and better cross-platform support than big-name competitors, the company's president said.

Pleasant Grove, Utah-based Zinc next month will ship Version 4.0 of its Zinc Application Framework, a C++ tool that lets programmers use the same source code across multiple environments — and across multiple human languages.

With Zinc Application Framework, corporate developers can create one C++ program that can be compiled to run on DOS and Windows (including the upcoming Windows version known as Chicago), OS/2 and Macintosh.

The code can also be compiled to run on multiple Unix implementations, said Robert Bishop, Zinc president and chief executive officer. Supported Unix operating systems include Sun Microsystems, Inc.'s SunOS and Solaris, Hewlett-Packard Co.'s HP/UX, IBM's AIX, The Santa Cruz Operation's SCO Unix and the Open Software Foundation's OSF/1.

"We're going to a number of different platforms, [and the Zinc] code has gone across very well with little or no changes," said Therese Tucker, team leader for a graphical user interface product being developed by ADS Associates, Inc. The Calabasas, Calif., company develops front-end trading systems for international banking using DOS, Microsoft Corp.'s Windows NT and various versions of Unix.

Additionally, Zinc Application Framework runs under every supported environment so developers can program on the platform they feel most comfortable with, Bishop said.

Key structure

The base package, which costs $499, consists of the Zinc Engine, to which the developer adds various "keys" that enable the resulting code to work with a particular operating system. Keys for DOS, Windows, OS/2 and Macintosh cost $299 each. Keys for each Unix implementation cost $1,499.

Version 4.0 adds a visual design tool that lets developers visually build an application's user interface from inside a completely integrated set of visual editors. It also adds the ability to "internationalize" code so the same code can be used with 12 languages, including Spanish, French, German, Italian, Japanese and Korean. Unicode support is also available for $4,999.

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Btrieve

CONTINUED FROM PAGE 71

compares to Btrieve in raw performance.

Wroblewski added that as NetWare users, Chrysler developers have had five years to familiarize themselves with Btrieve, and as a result, Chrysler has developed a large number of mini-applications on it that make up the factory diagnostics system. For this reason, Chrysler is encouraged by Btrieve's effort as an independent entity to develop modules that can plug into its microkernel back-end engine, he said.

"We may move to RISC, Motorola or a PowerPC for more power," Wroblewski said. "It's nice that I don't have to do a thing to the client if I swap in a more powerful back-end server. I definitely don't want to recode these applications."

Ultimately, BTI intends to roll out versions of Btrieve that run on Microsoft Corp.'s Windows NT, Unix and perhaps even OS/2, BTI officials said. BTI is preparing to deliver this month a 32-bit client version of Btrieve that will run on Windows. The company also plans to deliver a DOS client and NetWare Loadable Module for NetWare environments this fall.

Btrieve Scalable SQL for DOS and Scalable SQL Windows are priced at $1,295 each.

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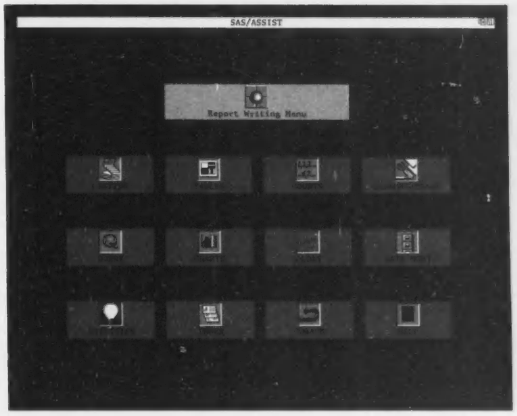

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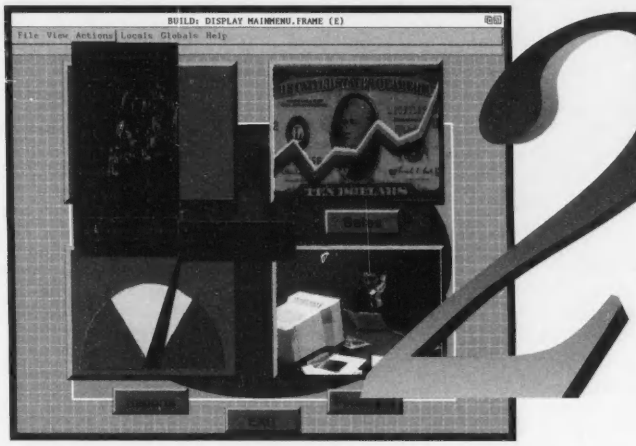

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Software AG of North America, Inc. has announced Natural Engineering Workbench (NEW)/Define and Natural for Windows, client/server development tools.

According to the Reston, Va., company, the products together provide functionality for the design and development of cross-platform applications.

NEW/Define is a PC-based tool that supports the analysis phase of the application engineering life cycle.

Natural for Windows is a fourth-generation language development environment that lets users design, develop, prototype, test, deploy, manage and maintain applications. Natural programs are source code-compatible across numerous operating systems.

Prices for NEW/Define start at $3,000 per user. Prices for Natural for Windows start at $1,250 per user.

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Structured Solutions, Inc. has announced AD/Method for Client/Server and AD/Method for Business Process Reengineering (BPR), development methodologies.

According to the Atlanta company, AD/Method for Client/Server is a full life-cycle methodology for developing small-scale and enterprisewide client/server applications.

AD/Method for BPR lets users reexamine and redesign company processes using a step-by-step approach to analyzing each level of the organization.

Both products are offered with the company's MAP/Administrator, an automated administrative platform that integrates methodology and tools into a multitasking environment.

Pricing is $20,000, or $5,000 for users with MAP/Administrator.

▶ *Structured Solutions*
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Command Technology Corp. has announced SPF/PC 4.0, a file manager and full-screen text editor for programmers.

According to the Alameda, Calif., company, SPF/PC 4.0 emulates IBM's mainframe ISPF/PDF so that mainframe programmers can develop applications on a PC.

Features include modifiable panels, table services, an undo/redo facility, program source colorization, file comparison, scrollable input fields, mouse support, 132-column support and 64K-byte record support.

SPF/PC 4.0 costs $295.

▶ *Command Technology*
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Product shorts

Centerline Software, Inc. has announced TestCenter 2.0, a software testing tool for Unix C and C++ programmers. Combining runtime error detection and memory leak detection with graphical text coverage, TestCenter 2.0 lets users completely test new applications. New features include an error simulator, function-level line code coverage, user-defined error checking and support for threaded applications. Cost: from $1,295 to $2,995. Centerline Software, Cambridge, Mass. (617) 498-3000.... **Atria Software, Inc.** has introduced ClearCase MultiSite, a software configuration management product for Unix that supports parallel development and software reuse across geographically distributed development teams. The product synchronizes versioned object bases based on the update pattern selected by the software team at each location. Update mechanisms include a built-in store-and-forward system, standard Unix file transfer facilities and magnetic tape-based transfer. Cost: $1,500. Atria Software, Natick, Mass. (508) 650-5100.

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COMPUTERWORLD

DEMONSTRATING THE VALUE OF TECHNOLOGY

Traditional ROI methods aren't enough to make the case for information technology. You have to find techniques for demonstrating value. JC Penney's Dave Evans and others have found a way to say . . .

No doubt about IT

By Alice LaPlante

Tom Lewcock, city manager for Sunnyvale, Calif., has two words for chief technology officer Shawn Hernandez: "Show me."

He expects Hernandez to demonstrate beyond a doubt the value of any technology project.

"Every nickel we spend on technology is a nickel not spent on important services such as education, law enforcement, transportation," Lewcock explains. "I want to make sure we are making the most productive and cost-effective decisions possible."

Don't misunderstand; Lewcock is no ordinary bean counter. This Silicon Valley city manager is technically astute and forward-thinking. And he's well aware of the nonquantifiable aspect of many technology projects. This is precisely the area he wants Hernandez to resolve.

"We already take a formal approach to measuring the quantitative cost efficiencies of all new hardware and software," Lewcock says. So Lewcock is really asking for a coherent way of determining *intangibles* — those compelling information technology benefits that defy the assignation of a number or dollar figure.

Hernandez's situation is a common one. To help him — and all other chief information officers facing similar edicts from top corporate management — *Computerworld* searched for companies that have successfully demonstrated the value of technology. The case studies presented here detail the specific methods the companies use to justify technology investments.

But pay special attention to the terminology used: *demonstrate*, not measure. Rely solely on a narrow return on investment analysis, and too much of the technology story gets distorted or lost completely.

Executives at every company *Computerworld* profiled emphasized, as Lewcock did, the need to include qualitative as well as quantitative evaluation methods. Information systems managers at these firms have developed convincing ways to combine these two methods. The critical success factor: mutual understanding between general and IS management — a set of agreed-upon values, if you will — about the business benefits from technology. And one of those values is a focus on demonstrating IS effectiveness, not just efficiency or return on investment.

Effectiveness metrics examine "whether the right things are being done for the right business functions, without regard to how much they cost. If IS is highly effective, the business benefits," says Kay Redditt, a former vice president at American Express Co. and principal of CogniTech Services Corp. in Easton, Conn., a consulting firm specializing in measuring information technology paybacks.

No doubt about IT, *page 80*

No doubt about IT

CONTINUED FROM PAGE 79

This is borne out by a 1993 study by Nolan, Norton & Co. in Boston, which suggests that the chief executive officers least satisfied with their information technology investment define success in terms of efficiency only. Those CEOs who defined information technology success in terms of how effectively IS met business goals, as opposed to being merely efficient, tended to feel they had received either all or most of the benefits of their investments, says John Halloran, managing partner at Nolan, Norton, who oversaw the study.

Efficiency "doesn't necessarily question whether these goals, infrastructure or processes are the right ones for your company's overall business goals," Redditt says.

Demonstrating value is marketing, pure and simple, and marketing doesn't come easy to most IS types, says Pat Mullen, a former IS executive at Digital Equipment Corp. and president of the Mullen Group in Sudbury, Mass.

Mullen says applying some sort of agreed-upon yardstick to information technology, if done correctly, fulfills the following two critical goals:

- IS gets essential feedback on strategic and tactical decisions.
- Senior nontechnical managers are brought into the loop, making them aware of the link between information technology and business success.

But those yardsticks, such as the ones presented in the following case studies, must also specify information technology benefits. After all, Halloran says, there can be a gap in perception between how IS is doing and how the business *thinks* it is doing. CIOs must communicate effectively to the people who count.

JC Penney
Buy-in from the top

At JC Penney, IS helps business managers demonstrate information technology's quantifiable and nonquantifiable benefits

At retail giant JC Penney Co., you'll never hear CEO W. R. Howell ask how much a particular technology project is costing the company — or why on earth someone thought *that* was a good idea. He knows. Along with six other top JC Penney managers, he sits on the capital appropriations committee, which must approve any information technology investment greater than $150,000.

DEMONSTRATING THE VALUE OF TECHNOLOGY

The company started the system in the early 1980s. "We initially began the process because of the fear that the business units weren't investing enough in information technology," says Dave Evans, vice president and IS director at the Dallas-based firm, which accrued $19 billion in sales during fiscal year 1993.

"Prior to that, there was the tendency to cut investment in systems instead of cutting something else. So this procedure was instituted to cause our business units to think of technology more as an investment than an expense," Evans says.

So for the past 10 years, senior executives at JC Penney have reviewed every major information technology proposal just as they would any other investment the company is considering, Evans says.

"It's a business-like projection of costs and benefits and a subsequent reporting of results — no different than if we were thinking of opening a new store," Evans says.

The first step is for business units requesting new applications to create proposals. An information technology employee then reviews drafts of the proposals. They help business managers estimate costs — both direct and indirect — as well as expected benefits.

Benefits are divided into quantifiable and nonquantifiable. Quantifiable savings include labor reductions, material savings and lower inventory costs. Nonquantifiable benefits include improved customer service, an improved competitive position or "an expected increase in sales that we don't think we'll be able to measure exactly," Evans says.

A traditional return on investment is calculated based on quantifiable costs and benefits. The nonquantifiable benefits are included as part of the overall report to the management committee.

For example, Evans says, "a whole section of the proposal is dedicated to spelling out competitive considerations, so it may be that a particular project comes in with no quantifiable benefits yet is considered a competitive necessity."

Once a proposal has been generated by a business "sponsor" and is helped along by IS staff, it must be signed by the controller of that business unit before being sent to the capital appropriations committee. But even if approval is won, the process is far from complete.

STAN WOLENSKI

▲ IS director Dave Evans says JC Penney thinks of technology as an investment

> "It's a businesslike projection of costs and benefits and a subsequent reporting of results — no different than if we were thinking of opening a new store."
>
> *— Dave Evans, vice president/ director of IS, JC Penney*

If a particular information technology project exceeds its budget, the capital appropriations committee must be approached for additional funds.

When a project is approved, a review date is set for after it is completed. This lets the company evaluate whether anticipated costs and benefits were realized. These "actuals" are recorded on the same proposal as the original estimates for a clear point of comparison.

No doubt about IT, *page 82*

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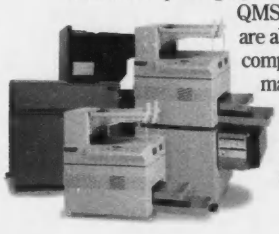

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No doubt about IT

CONTINUED FROM PAGE 80

If there is a delay in implementation, it sets back the evaluation date. The project manager must then go back to the committee and request additional time.

If a project goes over time and budget, "you are absolutely required to go and 'fess up," Evans says. Because of this, initial estimates of both costs and benefits tend to be conservative, he says.

The biggest advantage of the system is that both the business units and top corporate managers are aware of the business benefits of information technology investments. Previously, such benefits tended to be overshadowed, Evans says.

He says he remembers a time when all the quantitative analysis in the world wasn't as effective as merely dramatizing the effect of a particular project.

"My favorite example is when we wanted to replace the 45,000 [point-of-sale] registers in the stores at a total cost of $200 million," Evans says. The new registers would get customers through checkout lines faster. And they would more accurately capture data for inventory records. But Evans knew it would be difficult to quantify the benefits.

So Evans arranged to show a videotape of the old method — a scanning system that didn't work well and old hand-crank credit-card machines — along with a video of a pilot of the new system.

"A typical credit sale went from more than a minute to just 35 to 40 seconds," he says. "The president watched the videotape and said, 'We have to do this.'" ■

MEASURING INVESTMENT PAYBACKS

At JC Penney, both the business units and top corporate managers approve information technology investments and review whether benefits were as expected

1. Business units seeking new applications create proposals.
2. An IS employee reviews proposal drafts.
3. An IS employee helps business managers estimate both direct and indirect costs.
4. Expected benefits are estimated, divided into quantifiable (those that will result in hard savings) and nonquantifiable benefits.
5. Traditional return on investment is calculated based on quantifiable costs and benefits. Nonquantifiable benefits are included as part of the overall report to the management committee.
6. Controller of the business units reviews final reports for approval.
7. Proposals are sent to the capital appropriations committee for action.
8. Review dates are set to review the projects after completion to evaluate whether anticipated costs and benefits were realized.

S. C. Johnson
A portfolio-value approach

Rule #1 for CIOs: Talk in a language business people understand. What's more businesslike than managing a portfolio of investments?

Two years ago, Bill Vinck, an IS manager at S. C. Johnson & Son, Inc. — more commonly known as Johnson Wax — developed a "portfolio management" methodology for justifying and measuring the value of information technology investments.

The method helped earn Vinck a promotion to group director of worldwide IS.

The reason for the shift may sound familiar. Vinck had long been frustrated with the difficulties of discussing information technology projects with general business staff.

"We wanted to create a vocabulary that would allow us to converse more effectively with one another without becoming immersed in technical minutiae," he says.

DEMONSTRATING THE VALUE OF TECHNOLOGY

Vinck's first step was to divide all Johnson applications into six "portfolios" according to the corporate function each one supports: sales, marketing, distribution, finance, manufacturing and logistics. In each portfolio are the bundles of applications necessary to keep that particular function running smoothly.

Each portfolio manager is also given cost-reduction goals for the portfolio each year. This requires them to lower the portfolio's fixed costs and to keep coming up with innovative solutions.

The point of all this, Vinck says, is to think of each portfolio as the aggregate basis for the success of that business function.

Once the portfolios were defined, Vinck's staff began meeting on a regular basis with its various information technology customers. The purpose was to define the major process enhancements they wanted. For sales, it might be to increase sales by 50% or reduce the cost of closing sales by 15%. For manufacturing, it could be to reduce cycle time by 20% or lower inventory levels by 5%.

"These are specifically business goals, things that get decided within the business. Our job thus becomes to understand them, and our value becomes one of how we can work with you to meet those goals," Vinck says.

Once the goals are defined, the information technology team begins formulating technology strategies to meet the goals. "As soon as we are clear on the general business objectives, we work on a more detailed basis to develop specific activities that IT can perform — either creation of a new system or enhancement of an existing one — to meet those objectives," Vinck says.

At this point, traditional cost and budget activities take place. These are "exactly the same as just about anyone's way of formulating a project," he says. A final budget report is created for each business unit general manager.

All project costs are divided into fixed (current) and discretionary (optional) costs. To explain fixed costs to business line managers, Vinck tells them, "here are your current sales systems, and this is what they are costing you. These are your fixed costs — how much it costs you to maintain the status quo."

On the other hand, he explains, "these are your discretionary — i.e., optional — costs involved in putting in the new system." The discretionary costs include cost reductions from unplugging or modifying the existing way of doing things. Managers are presented with the incremental costs of the investment, telling them how much their expenses will change as a result of putting in the new system.

"At that point, it becomes fairly easy to weigh the expected process improvements with the additional costs. If the general manager thinks there's a better way to spend that money, he will," Vinck says.

An important point, Vinck says, is that everyone is clear that information technology alone will not carry an ambitious improvement initiative.

"No one imagines that IT can accomplish these types of goals single-handedly. Our role is to accomplish some percentage of the whole," Vinck says.

Once the project is completed, Vinck's team conducts a postmortem to determine how close the expected costs and benefits were to the actual results.

The biggest roadblock to this way of doing things, Vinck says, is "it's difficult to get IT people to think in these terms. They still think in terms of programming changes. When I walk down the hall and ask how a particular portfolio is doing, I still get some blank stares. However, we're making some slow but steady progress." ■

No doubt about IT, *page 84*

MEASURING INVESTMENT PAYBACKS

S. C. Johnson divided its applications into six portfolios, each containing all the applications that support a major business function such as sales or logistics

1. Each business unit general manager defines the process enhancement goals for his department.
2. An information technology team headed by a portfolio manager formulates a technology strategy to meet the goals, either by creating a new system or enhancing an existing one.
3. Traditional costing and budget activities take place.
4. A final budget report is created for each business unit general manager.
5. All project costs are divided into fixed (current) and discretionary (optional). Discretionary costs include cost reductions that would result if existing systems were unplugged or modified. Managers are presented with the incremental costs of the new investment, which tell them how much their expenses will change as a result of putting in the new system.
6. The business unit weighs the expected process improvements with the additional costs and makes a final decision.
7. The IS team does a postmortem to determine how close the expected costs and benefits were to the actual results. It also determines how the overall value of a particular portfolio has been enhanced.

"As soon as we are clear on the general business objectives, we work on a more detailed basis to develop specific activities that IT can perform – either creation of a new system or enhancement of an existing one – to meet those objectives."
– Bill Vinck,
group director of worldwide information systems,
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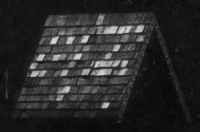

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No doubt about IT

CONTINUED FROM PAGE 82

Conoco

Value is the best defense

Lloyd Belcher was worried that budget-cutters might attack Conoco's executive information system. So he came up with a way to prove its worth.

Energy giant Conoco, Inc. jumped into the executive information system (EIS) business at the top — the very top.

The Houston-based firm's now-mammoth EIS project was jump-started in the early 1980s. The reason was a request from Constantine Nicandros, then president of Worldwide Petroleum Operations and Conoco's president and CEO since 1987. Nicandros wanted easier and faster access to data stored in the oil company's then-inapproachable legacy systems.

Yet even though the EIS was Nicandros' baby, EIS manager Lloyd W. Belcher decided in 1992 to take a closer look at the system's benefits. Given the pressure to cut costs at Conoco, which is a subsidiary of E. I. DuPont de Nemours and Co., Belcher figured he ought to prove the system's worth before — not after — it came under attack during a wave of budget cuts. The challenge: "We absolutely need to develop ways to demonstrate value, and traditional IS measures such as ROI simply aren't appropriate," he says.

DEMONSTRATING THE VALUE OF TECHNOLOGY

Belcher began by examining the literature on measuring the benefits of EIS (see chart). He concluded that interviewing key users about perceived benefits must be a critical part of the evaluation process.

First, a team from the EIS support staff was assigned to carry out the EIS evaluation. It began by collecting statistical data on who used the system and which applications they used. The applications include data on oil prices and other industry statistics and data on Conoco's inventory, products, prices and financials.

Next, an EIS User Interview Form was created. The form included questions on what data in the EIS system was being used, whether the system was meeting the users' needs and what, in the users' opinion, were the tangible and intangible benefits.

Key users in each department — department heads and frequent users — were interviewed for 30 to 60 minutes each, according to Belcher. The EIS evaluation team prepared reports on each department and discussed them with each departmental manager. These reports summarized in a spreadsheet the costs and benefits of each application by individual users and by the whole department. Managers could also see how their department compared with EIS usage by Conoco as a whole.

Meanwhile, a report on each EIS application was created. These "EIS Application Reviews" included the following:

- The purpose of the application.
- What original function it replaced. For example, access to industry statistical data replaced the need to publish weekly booklets and distribute them to interested employees.
- Average user access per month.
- The estimated savings — both the actual costs of the EIS and the estimated costs if the EIS did not exist.
- Noteworthy intangible benefits.

Savings were quantified on applications benefits worksheets. The EIS evaluation team assigned dollar values to such factors as information distribution and software replacement.

The EIS evaluation team also attempted to put a cash value on such difficult-to-quantify benefits as better decision-making and increased productivity by the executives who used the system. Productivity increases were measured by assigning a dollar value to the amount of time executives saved by finding industry statistics through the EIS. Better decision-making proved tougher to quantify; no hard-cash benefits were entered unless users could document how the EIS triggered a decision that led to a hard-cash return.

The full cost of each application was also calculated. This included direct costs of maintaining the EIS support staff, indirect personnel costs in the business units who supported the EIS and hardware and software costs.

The final product was a management report on the benefits and costs of Conoco's EIS. This report detailed tangible and intangible paybacks at the end-user, department and corporate level, as well as for each application within the EIS.

As a result of this strenuous EIS-evaluation effort, management has continued to support the system. Today, the EIS encompasses more than 75 separate applications used by more than 4,000 Conoco employees scattered around the globe. The EIS has consistently remained at the top of the information technology priority list when funds are cut.

Furthermore, a paper by Belcher and Hugh J. Watson, a professor at the University of Georgia in Athens, won an award from the Society for Information Management and was published in the September 1993 issue of *MIS Quarterly*.

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"You need to get into the spirit of continuous process improvement," Belcher says. ■

No doubt about IT, *page 86*

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After reviewing the literature, Conoco's EIS manager, Lloyd Belcher, came up with these criteria for evaluating information technology investments:

1.

The business value of the EIS should be determined at the level at which the value is received — i.e., individual, departmental or enterprise-wide.

2.

Although the evaluation should relate to Conoco's bottom line, intangible benefits should be noted, recorded and duly assessed even if no dollar value can be assigned to them.

3.

To ensure the credibility of the evaluation, all benefits should be measured conservatively.

MEASURING INVESTMENT PAYBACKS

Conoco's EIS evaluation process included five major steps

1. Collect statistical data on usage of the executive information system.
2. Identify and interview key users in each department.
3. Review each EIS application. The review documents include:
   - the purpose of the application;
   - what original function it replaced;
   - the estimated savings;
   - average user/accesses per/month;
   - noteworthy "intangible" benefits;
   - and full cost of the application.
4. Departmental managers receive a report on their department's EIS usage.
5. Top management receives a report detailing tangible and intangible benefits of the EIS.

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No doubt about IT

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Conoco Value is the best defense

Lloyd Belcher was worried that budget-cutters might attack Conoco's executive information system. So he came up with a way to prove its worth.

Energy giant Conoco, Inc. jumped into the executive information system (EIS) business at the top — the very top.

The Houston-based firm's now-mammoth EIS project was jump-started in the early 1980s. The reason was a request from Constantine Nicandros, then president of Worldwide Petroleum Operations and Conoco's president and CEO since 1987. Nicandros wanted easier and faster access to data stored in the oil company's then-inapproachable legacy systems.

Yet even though the EIS was Nicandros' baby, EIS manager Lloyd W. Belcher decided in 1992 to take a closer look at the system's benefits. Given the pressure to cut costs at Conoco, which is a subsidiary of E. I. DuPont de Nemours and Co., Belcher figured he ought to prove the system's worth before — not after — it came under attack during a wave of budget cuts. The challenge: "We absolutely need to develop ways to demonstrate value, and traditional IS measures such as ROI simply aren't appropriate," he says.

Belcher began by examining the literature on measuring the benefits of EIS (see chart). He concluded that interviewing key users about perceived benefits must be a critical part of the evaluation process.

First, a team from the EIS support staff was assigned to carry out the EIS evaluation. It began by collecting statistical data on who used the system and which applications they used. The applications include data on oil prices and other industry statistics and data on Conoco's inventory, products, prices and financials.

Next, an EIS User Interview Form was created. The form included questions on what data in the EIS system was being used, whether the system was meeting the users' needs and what, in the users' opinion, were the tangible and intangible benefits.

Key users in each department — department heads and frequent users — were interviewed for 30 to 60 minutes each, according to Belcher. The EIS evaluation team prepared reports on each department and discussed them with each departmental manager. These reports summarized in a spreadsheet the costs and benefits of each application by individual users and by the whole department. Managers could also see how their department compared with EIS usage by Conoco as a whole.

Meanwhile, a report on each EIS application was created. These "EIS Application Reviews" included the following:

- The purpose of the application.
- What original function it replaced. For example, access to industry statistical data replaced the need to publish weekly booklets and distribute them to interested employees.
- Average user access per month.
- The estimated savings — both the actual costs of the EIS and the estimated costs if the EIS did not exist.
- Noteworthy intangible benefits.

Savings were quantified on applications benefits worksheets. The EIS evaluation team assigned dollar values to such factors as information distribution and software replacement.

The EIS evaluation team also attempted to put a cash value on such difficult-to-quantify benefits as better decision-making and increased productivity by the executives who used the system. Productivity increases were measured by assigning a dollar value to the amount of time executives saved by finding industry statistics through the EIS. Better decision-making proved tougher to quantify; no hard-cash benefits were entered unless users could document how the EIS triggered a decision that led to a hard-cash return.

The full cost of each application was also calculated. This included direct costs of maintaining the EIS support staff, indirect personnel costs in the business units who supported the EIS and hardware and software costs.

The final product was a management report on the benefits and costs of Conoco's EIS. This report detailed tangible and intangible paybacks at the end-user, department and corporate level, as well as for each application within the EIS.

As a result of this strenuous EIS-evaluation effort, management has continued to support the system. Today, the EIS encompasses more than 75 separate applications used by more than 4,000 Conoco employees scattered around the globe. The EIS has consistently remained at the top of the information technology priority list when funds are cut.

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Watkins Johnson

A technique for analyzing risks, as well as costs and benefits, helped Watkins Johnson make a build-or-buy decision

In 1991, the Watkins Johnson Co. faced a dilemma: Should it keep its homegrown, 25-year-old suite of financial applications?

The mainframe-based, patched-over systems were straining to meet the needs of the $264 million electronics firm based in Palo Alto, Calif. And if the decision was made to replace them, would it be more effective to build a custom system in-house or buy one from a vendor that would require only minor modifications?

DEMONSTRATING THE VALUE OF TECHNOLOGY

Thanks to a methodology developed by Robert Benson, a professor at the Center for the Study of Data Processing at Washington University in St. Louis, Watkins Johnson was able to make that decision successfully. So successfully, in fact, that the company will replace its traditional return on investment analysis methods for upcoming capital appropriations decisions with the same methodology that helped it make the move to client/server.

Benson labeled his methodology "information economics." But Watkins Johnson first encountered it under the name "CB-90" — a name given to it by Oracle Corp., whose consulting group recommended it (along with several other return on investment techniques) to clients clamoring for a reliable benefits analysis formula.

In-depth analysis prior to making a major capital investment is not unusual at Watkins Johnson. Every proposed capital expenditure must undergo a rigorous cost-benefit analysis that has been in place at the firm for years, says Bill Perrone, manager of internal controls, who oversees auditing functions at the firm.

But CB-90 "provided us with a lot more detail than our previous way of doing a capital expenditure analysis," Perrone says.

Perrone was particularly impressed with CB-90's ability to roll the intangible benefits into the decision process logically. "That's something a traditional ROI can't do," he says.

The CB-90 method involves asking key users at the company to assess the tangible and intangible benefits of the application in question, as well as the risks involved. The application can either be installed or proposed; the methodology will demonstrate the value either way.

In this particular case, information planning manager Ed Abell knew he wanted to replace Watkins Johnson's IBM MVS financial systems. But beyond that, he was stumped.

Abell debated whether to build his own system or go outside. When Oracle suggested the CB-90 methodology to determine how much value the software would provide, Abell thought there was little to lose by trying it.

The first step in CB-90 is to form a team of key users from the affected departments. Abell first asked financial "experts" — a combination of managers and staffers in such areas as credit and collections and cost accounting — to go over the proposed system. He asked them to formulate feature-by-feature the tangible and intangible benefits they expected if such a product were installed. These benefits were to be stated in business, not technical, terms.

A tangible benefit of the new accounting module, for example, would be the ability to send out payment-due letters faster. This would speed up collections on overdue accounts.

An intangible benefit, one that would be difficult to assign a dollar value to, would be more accurate financial forecasting.

On the other hand, a potential risk of the new system could be a lack of user acceptance for it.

At the end of this process, the team had thought of 13 tangible benefits, five intangible benefits and six risks for installing the Oracle system, Abell says. Tangible benefits included reduced head count and reducing the accounts receivable cycle by two days. Intangible benefits included better control of departmental budgets, improved financial reporting to executives and keeping on top of potential cash-flow problems before the end-of-the-month closing. Risks included the system's inability to respond to quick changes in the manufacturing climate and employee resistance to any sort of change.

As a comparison analysis, the company similarly examined the impact of building a system from scratch. In that scenario, the company decided it could build its own system, but the time factor would delay tangible and intangible benefits alike.

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Taming the Gnarly NOS

Although they've been around for a while, enterprise network operating systems present users with some tough problems. Here are 10 issues to troubleshoot.

By Wayne Kernochan

IT'S SIMPLE: Information systems needs a network operating system that delivers the same services for an enterprise-scale LAN internetwork that a mainframe operating system and utilities deliver for a data center.

Maybe it's not so simple. No one's done it yet.

Users have found that in real-world implementations of enterprise network operating systems, major problems can occur in the following areas: costs, service and support, systems management, installation, availability, data scalability, the name service, gateways, communications, protocol choice and supplier dependence.

Network operating system vendors, including Banyan Systems, Inc., Microsoft Corp., IBM and Novell, Inc., are tackling these problems as they arise, release by release, leaving their ultimate solutions for the future.

Their task is difficult because on one hand, the network operating system must make the network and its disparate components transparent to users and outside code so applications and utilities appear to operate on one system.

On the other hand, the operating system must make the systems in the network and the connections between them visible to administrators so they can determine the best architecture, isolate errors and allocate resources. Network considerations complicate an operating system's performance optimization, data gathering, high-availability design and interfaces with other components.

So far, Banyan has received high marks from users for administrative simplicity, and Novell has won praise from its third-party suppliers for breadth of product. Microsoft's Windows NT and LAN Manager and related IBM LAN Server are often seen as more strategic.

The following are explanations of network operating system trouble spots that will help you rein in the problems before they get away from you.

Also Inside:

COMPUTERWORLD BUYERS' SATISFACTION SCORECARD

Network operating system market leaders
Our 200-user survey finds that not all products are created equal. **Page 95**

FIRING LINE

Artisoft's LANtastic 6.0
Users rate the leading low-cost alternative network operating systems. **Page 96**

1 COSTS

Visible, hidden and opportunity costs plague network operating systems.

Visible costs are the easy ones to spot. These include training, service and support, hardware and software purchases and application development expenses. The one hitch is that network operating systems have traditionally offered fewer logging mechanisms for visible costs than mainframe utilities.

Hidden costs are not properly detected by the enterprise's accounting mechanisms. These include the following: slush and discretionary funds, limits below which expenses are not itemized and mislabeling of costs by legacy accounting systems.

Opportunity costs are the extra unpaid effort departments put in to keep the network running. Within reasonable bounds, they represent savings and end-user commitment. When they become too large, the LAN is overstressed and headed for disaster.

2 SYSTEMS MANAGEMENT

Culture clashes and inadequate tools make management difficult.

Culture clashes come about because, traditionally, networking and systems administration professionals have operated separately. Effective systems management requires that both the solutions and the people operating them work as one integrated whole. When a breakdown in the LAN internetwork occurs, IS may see finger-pointing between the two groups as serious as any supplier disagreement.

Likewise, today's systems management tools are immature. Actually, the network operating system has made significant advances in this area, providing a common core of systems management functions that integrate network management and systems administration functions. However, what works on a 100-user LAN does not necessarily work on a 1,000-user global internetwork.

Moreover, today's network operating systems have made a conscious decision to restrict themselves to core systems management functionality and encourage third-party suppliers to provide the rest. Users will need to acquire and integrate these third-party systems management utilities with a corresponding increase in LAN complexity and multisupplier service headaches.

Right now, Banyan offers effective large-scale systems management functions for its own and other network operating systems via the Enterprise Network Services product, but it offers fewer third-party utilities than Novell's NetWare. Users have been slow to migrate to NetWare 4.0, Novell's entry in the enterprise-scale systems management race, and many are waiting for NetWare 4.1, tentatively scheduled for release at the end of the year. Until NetWare 4.1, and perhaps beyond, users must choose between network operating system management solutions that are not entirely satisfactory.

3 SERVICE AND SUPPORT

Network operating systems are loaded with multisupplier support headaches.

A typical enterprise-scale LAN may involve a different supplier for the operating system, server hardware, PC LAN applications software, PC hardware, client networking hardware, uninterruptible power supply, bridges or routers, hub, shared printers, data management software, application development software and interfaces to legacy systems. Service and support share-of-cost estimates range from 40% to 70% of total five-year LAN internetwork costs.

IS managers are likely to see two manifestations of multisupplier service and support problems: finger-pointing and support resource scarcity. Finger-pointing occurs when a supplier claims that another supplier is to blame for a LAN internetwork problem. Service providers from Compaq Computer Corp. to IBM now offer one-stop service and support. A major benefit of one-stop shopping is the service provider contacts suppliers and resolves finger-pointing in a timely fashion. However, IS should expect service providers to pass on the costs of finger-pointing resolution.

4 INSTALLATION

Variables and third-party products snarl network operating system installation.

Installation is an ongoing process and typically involves more than just loading the operating system's software on a server. The average LAN size is still not much larger than 20 end users, and few servers support more than 1,000 users, which means a new server must be added every so often and connections run between the new LAN and the old ones. A typical LAN installation may involve a wiring closet, network interface cards for each client, wiring cable laid through offices, perhaps a hub and multiplexer, a bridge or router to other LANs and careful design of the LAN itself.

5 AVAILABILITY

Network operating system vendors are slow to incorporate robust availability technologies.

From the end user's point of view, network operating systems have been a significant advance in availability. When the server or network crashes, the end user can continue working on the client PC; when the client PC goes down, the end user can transfer to another PC.

However, enterprise-scale operating systems lag behind high-end systems in overall robustness. No network operating system supports full bidirectional backup and recovery between server and client. Network operating system suppliers have been slow to incorporate high-availability technologies, such as symmetrical multiprocessing support, file-system journaling and clustering fail-out, compared with the Unix.

6 DATA SCALABILITY

Database scaling has its limits.

IS managers seeking to implement enterprise-scale data management on a network operating system will find serious difficulties in scaling database size beyond the 20G- to 30G-byte range.

Today's gating factor for increasing database size is backup speed, according to relational database management system suppliers. Parallel on-line backup on a midrange Unix server can achieve 20G bytes per hour or more; NetFrame Systems, Inc.'s recent DataJet III announcement claims 3G bytes per hour. Network operating systems suppliers have handed backup chores to third-party software suppliers such as Cheyenne Software, Inc. Creating higher-performance parallel backups will probably require coordination among these suppliers, server hardware suppliers and operating system suppliers.

7 THE NAME SERVICE

Poor selection can turn into a LAN administrator's nightmare.

The name service stores and provides access to key data used by the network operating system, typically user and resource information. A name service is perhaps the most vital and yet underappreciated part of the operating system. As a central repository of distributed system data, it can leverage the electronic-mail system, client/server application development software or systems management solution as well as the network operating system. On the other hand, a poorly designed or immature name service can permanently limit LAN-internetwork scalability, clog the network or create a nightmare of conflicting, redundant or inaccurate information.

Even a very good name service is likely to be a problem for the user. No matter how good the technology, as the LAN internetwork grows, the name service's load on the network (as it continually resynchronizes) increases. The more applications access the name service's highly useful information, the more remote name service queries add a further load.

Banyan has an excellent name service — StreetTalk — that has benefited from a decade of real-world upgrading and is available on NetWare. Microsoft and Novell have provided partial solutions, but these do not fully scale and therefore make it difficult for users to migrate to newer solutions. Novell's NetWare 4.0 appears to provide an enterprise-scalable name service, but users find it difficult to migrate older Novell Bindery name service data to the new formats.

8 GATEWAYS

Support of different environments causes gateway problems.

In a network operating system or outside of it, gateways translate from one operating environment to another across the network. Gateways translate E-mail from one format to another, files from one operating system to another, data from one database format to another. The user's most vital operating system gateways allow Macintosh and Unix workstations to join a PC LAN or link the LAN's server to back-end hosts and backbones.

Typically, the greater the differ-

Taming the NOS, *page 90*

Looking Upward • IS IT WORTH THE COST?

By Ken Mackin

UPGRADING YOUR NETWORK OPERATING SYSTEM IS NEVER easy. It's impossible to anticipate every calamity. Knowing what applications you need in order to upgrade and what network components have to be upgraded at the same time is half the battle.

Here is a system-by-system description of upgrade options: a switch from Novell, Inc.'s NetWare 3.x to 4.x, a move to the upcoming IBM LAN Server 4.0, Banyan Systems, Inc. Vines upgrade to Version 5.5 and a move from Microsoft Corp.'s LAN Manager to Windows NT Advanced Server.

Novell's NetWare 4.0

New features:

- **Improved directory services.**
- **Hierarchical storage file system.**
- **Multiple-server single network log-on.**
- **Novell's GroupWise, provided free of charge.**

If you are using NetWare 2.x or 3.1, there are a number of reasons to upgrade to NetWare 4.x. Novell 4.x's NetWare Directory Services (NDS) is a big one. NDS allows for a single network log-on for multiple servers — something akin to the domains found in the other operating systems. But NDS' 15-level hierarchy goes way beyond the flat domain-style architecture, allowing network administrators to structure very large networks for maximum effectiveness using a variant of X.400.

NetWare 4.02 corrects nearly all the flaws pointed out by critics of NetWare 4.01. It will allow users to get up and running much more quickly with a flat-file structure similar to a domain or a Banyan StreetTalk layout. Taking that route precludes taking advantage of a lot of what NDS has to offer. You can take advantage of NetWare 4.02's hierarchical storage system, which is a set of programs for managing large quantities of data.

NetWare 4.x is not cheap. Implementing a 1,000-user network costs as much as $17,000 for the network operating system software. Contrast this with the aggressive pricing of Microsoft and IBM upgrades, at $1,495 and $2,295, respectively. Novell, reacting to sluggish demand, cut prices for upgrading by an average of 15% last month.

IBM's LAN Server 4.0

New features:

- **Full OS/2 object drag-and-drop management tools.**
- **Multiprotocol and adapter support that includes TCP/IP and 75 Network Interface Cards (NIC).**
- **Totally redesigned clients for OS/2, DOS, Windows and Macintosh.**

LAN Server 4.0 promises to be a big break from IBM's past. A full graphical user interface implementation built on the System Object Model, LAN Server 4.0 will offer one of the first true drag-and-drop administration technologies in any mainstream network operating system. TCP/IP support is available as well.

IBM says the new version delivers up to a 30% performance gain at the client. Server Message Block (SMB) protocol support will allow Windows for Workgroups, Windows, DOS and Microsoft Windows NT clients to seamlessly integrate with LAN Server environments. Also, all the client software products will include at least single-session peer SMB access to the network, including their DOS clients. The LAN Server client software allows for single log-on to multiple domains and multiple NetWare 2.x and 3.x servers. If it arrives this fall, it might be a good choice for NetWare users who want to upgrade slowly.

Pricing for LAN Server is $745 for the slower entry-level version and $2,245 for the advanced.

Banyan's Vines 5.5

New features:

- **Beefed-up multiprocessor support.**
- **Improved SCSI and NIC support.**
- **On-line documentation.**

Vines 5.5 is the company's latest effort to improve on its robust network operating system. Vines uses the company's flat-file directory services product StreetTalk.

Vines 5.5 does not have as much to offer as other network operating system upgrades mentioned here. The disk-swapping multitudes will appreciate the CD-ROM installation as will those who like on-line documentation.

Pricing for Vines runs from $2,995 for 10 users to $14,995 for 250 users. That puts Vines above even NetWare 4.x in terms of price. You really have to want this one to pay that kind of money, but the intelligence of Banyan's StreetTalk III database is worth it in many cases.

Microsoft's Windows NT Advanced Server

New features:

- **Interdomain trust, which is an enterprise sharing feature.**
- **Windows interface on server.**
- **Portable to RISC-based CPUs.**

Upgrading from Microsoft's LAN Manager to Windows NT Advanced Server is not a very complicated choice. Microsoft's Upgrade Kit for LAN Manager users costs $595.

If you are using Microsoft's LAN Manager and have decided that NT Advanced Server is your upgrade path, my advice is to wait for Daytona, Microsoft's upcoming Windows NT upgrade. Microsoft claims that Daytona is a much improved product in terms of efficiency and performance.

The current NT Advanced Server has been shown to perform no better than LAN Manager. But what it does offer is C2 security, excellent print services — especially for Macintosh — good user and resource administration, an enterprise sharing feature known as "trusted domains," a really friendly network interface card and protocol management suite that is similar to OS/2's LAN Requester. ■

Mackin is president of Product Logic Corp. in Roswell, Ga.

Taming the NOS

CONTINUED FROM PAGE 89

ence between the two linked environments, the greater the user's problems with the gateway. For example, a survey by Aberdeen Group in Boston has shown that a major concern of Fortune 1,000 Macintosh administrators is the ability to link their Macintoshes and PCs. A network operating system is their method of choice for doing so.

However, these users do not view a network operating system as a very good choice because the differences in Macintosh and PC file formats and code mean that files and applications are difficult to share across a mixed Macintosh/PC LAN environment.

Similar problems arise when users try to combine a network operating system with a non-PC operating system such as Unix. Unix security is different from NetWare security, and the user may need to decide which should rule or whether to build a wall between the two.

9 COMMUNICATIONS PROTOCOL CHOICE

Protocols on LAN and WAN levels can be problematic.

Practically speaking, users linking an enterprisewide LAN internetwork together usually have two protocol choices: NetWare's SPX/IPX and the Unix world's TCP/IP.

NetBIOS, a favorite in the old IBM PC LAN and newer LAN Manager/LAN Server, is often not viewed as scalable to large-scale enterprises and may perform less well in client/server communications. Old favorites, such as SNA or Digital Equipment Corp.'s DECnet, are not viewed as open.

If the user decides to implement SPX/IPX across the network, the enterprise internetwork may see greater administrative burdens, more difficulty linking the network to back-end hosts and mid-range servers and some decrease in performance and reliability in wide-area network communications.

If the user decides to implement TCP/IP across the network, each PC or LAN in the internetwork may see annoying slowdowns in performance and difficulties joining TCP/IP to NetWare.

If the user decides to implement SPX/IPX for client/server communication and TCP/IP for server/server communication, the administrator must use a gateway, with all the gateway problems cited earlier.

10 SUPPLIER DEPENDENCE

Network operating system users are locked into one vendor.

As noted above, a network operating system-based LAN is a multisupplier world, and therefore users have an unusually numerous amount of options of third-party products. However, the rate at which the problems cited above can be solved depends not so much on third-party suppliers as on the operating system suppliers themselves.

Because users find it relatively difficult to migrate an enterprise-scale network operating system-based LAN from one operating system to another and because operating systems that can manage multiple suppliers' network operating system-based LANs find it difficult to keep pace with multiple evolving network operating system products, users are to some extent tied to one vendor.

In the long run, increasing competition and the convergence of network operating system suppliers with Unix-based operating system functionality will solve the network operating system supplier dependence problem.

In addition to this trend, Windows NT adds to the mix and suppliers such as Banyan are detaching chunks of their network operating systems to add to others' solutions

However, in the short run, the user should be prepared for this problem to get worse instead of better. ■

Kernochan is director of commercial systems research at Aberdeen Group in Boston.

DIGITAL **Update** AUGUST 1994

HIGHLIGHTS

In this issue, get the latest on special offers, product and service news, and details on Digital business solutions that are right for you.

The DECpc XL Server
Performance, reliability, and expandability at a great price

Alpha AXP Technology Solutions for the Utilities Industry
Increase your competitive advantage with the platform of choice for utilities applications

Digital's PowerChannel Program
Powerful hardware/software packages that are specially priced and easy to order

TARGET->SMART SEARCH
Text and document retrieval made easy with this advanced knowledge-based application for OpenVMS

WordPerfect for OpenVMS
Now you can buy WordPerfect for OpenVMS for $109 per user (or less, depending on quantity)

Alpha-ready VAX Systems
Protect your current software and system investment, and get up to 50 percent improvement in computing performance

Digital's Telecollaboration Solutions Make Audio/Videoconferencing Pay Off for You

From online industry meetings to long-distance training sessions to video sales calls, Digital's telecollaboration solutions bring people together across geographies — enhancing communications, corporate relationships, and productivity. These solutions make maximum use of your existing high-bandwidth Ethernets and systems, saving you money and protecting your computing investments.

Rapidly improve your company's productivity and customer service. And save time and money now.

Digital's family of telecollaboration products supports Intel-based PCs and Alpha AXP workstations across local area and metropolitan area networks, and are designed to adhere to standards set by the Joint Photographic Experts Group (JPEG).

What's more, Digital's vast experience in systems integration and networking enables us to provide not only the products but also the comprehensive support that's critical to the successful integration of this emerging technology.

Work Becomes More Efficient and Effective

Our telecollaboration products can put you immediately in touch with many different locales without your ever having to leave your desk. Travel time and expenses are no longer an issue. With the flexibility afforded by full-motion videoconferencing and audioconferencing, you can dramatically boost productivity in a variety of areas, including process management, customer service, and sales and marketing management.

And it's so easy. Graphical windows user interfaces with online help, tool bars, and award-winning icons hand you control of a whiteboard, sound, display, and other functions. Both workstations and PCs have the same interface, so it's easy to move from one to the other.

It's economical, too. Adding telecollaboration products to a PC or workstation costs just a little more than the PC itself. Your investment will quickly pay for itself in greater productivity and significantly lower travel expenses. That's great news for your business's bottom line.

Digital Provides the Total Solution

When it comes to telecollaboration solutions, very few companies provide a package that is as comprehensive as Digital's. Look to us not only for the right telecollaboration products (card, software, camera, microphone, headset, speakers, cables, and manuals) but also for PCs, workstations, network products, systems integration, and network services.

For more information on Digital's telecollaboration solutions,
CALL 1-800 DIGITAL
(1-800-344-4825) and reference JBZ.

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Details on the DECpc XL Server

The DECpc XL Server features not only an EISA bus for your current peripherals, but also the new PCI local bus for the next generation of high-performance options.

Performance, Reliability, and Expandability at a Great Price

Let's face facts. Your network is only as reliable — and as fast — as the system server in your computing environment. If you're not getting the reliability and performance you need, maybe it's because you have old servers or overworked PCs acting the part of the server.

Users cannot afford to have their servers offline. What you need is an affordable high-performance PC server with a modular architecture that offers processor scalability, expandability, subsystem reliability, and compatibility with the most reliable software. Is all this too much to ask for in a server? Digital says no — and proves it by offering you all this and more in the DECpc XL Server.

Now, Add Choice

The DECpc XL Server family offers industry-leading server performance scalability from the 486DX2/66 MHz through today's most advanced Pentium technology, the Pentium 90 MHz processor, and up to the Alpha AXP platform or future Intel processors. For example, the industry-standard AIM technology benchmark has shown the DECpc XL Server 566 to be 50 percent faster than Compaq's highest-performing ProSignia, the ProSignia 560, and costs 31 percent less. This outstanding price/performance has helped the DECpc XL Server earn its "Best of Breed" honor from Dataquest (March 16, 1994).

What's more, with the DECpc XL Server, you can choose from most major server operating systems, including NetWare, UNIX, and Windows NT.

And Expandability

The DECpc XL Server offers superior expandability. Thanks to a unique motherboard/daughtercard design, you can snap in a new CPU card with cache in minutes. The same goes for additional hard disks. Simply snap them in.

And when it comes to expanding your network, the DECpc XL Server is ready with seven slots and nine bays, including up to six internal drives providing up to 8 GB of internal storage. In addition, the server comes standard with built-in CD-ROM, on-board controller graphics, and PCI SCSI.

The biggest news is that the DECpc XL Server features not only an EISA bus for your current peripherals, but also the new PCI local bus for the next generation of high-performance options. In short, you get everything you want in one neat package. And all of it is backed by Digital's three-year, on-site warranty.

For more information or to order the DECpc XL Server, call

1-800-722-9332

Lights Out — But Not for Long

With Digital's Alpha AXP Technology, You Have the Power to Outsmart a Blackout and Outperform Your Competition

Breakthrough customer service. It has become an increasing advantage for utility companies like yours that face competition, deregulation, environmental issues, diversification, and other forces. The truth of the matter is that in the '90s, industry leadership means putting the customer first.

How? By guaranteeing your customers the fastest time to power restoration in the event of a power failure. By keeping your customers informed about their utility status through fast delivery of critical information. By linking people, processes, and organizations together to provide fast emergency-response time. Digital empowers you with all this and more via revolutionary AXP technology running world-class partner applications for the utilities industry.

With more than 1,000 utilities customers in 72 countries, Digital understands your business issues and concerns. You have asked for solutions in the areas of SCADA/EMS, plant operations, GIS, customer services, administrative services, and more — and we've got you covered. Not only do our solutions help you build customer satisfaction, but they also reduce your costs and improve your effectiveness — two more factors that help grow your competitive advantage.

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Alpha AXP Platform: The Power of Choice for Utilities Applications

Designed to run multiple operating systems — OpenVMS, OSF/1, and Windows NT — the Alpha AXP platform has the flexibility to accommodate a wide range of computing technologies.

In addition, Alpha AXP technology is designed to deliver solutions well into the 21st century, thereby protecting your computing investment. For your utilities applications, no platform can run them faster and at a better price/performance than Digital's revolutionary 64-bit platform.

A Powerful Portfolio of Partners

Digital's Alpha AXP utility solutions portfolio continues to grow as an increasing number of business partners take advantage of the power and performance of the Alpha AXP platform. A small sampling of partners offering applications running on the Alpha AXP platform and designed for the utilities industry includes:

- ABB
- CAE Electronics Ltd.
- Cegelec/ESCA
- Configured Energy Systems, Inc.
- EDS/Energy Management Associates, Inc.
- Electric Power Consultants, Inc.
- Elsag Bailey/NMTI
- Environmental Systems Research Institute, Inc. (ESRI)
- INDUS, Inc.
- Johnson Yokogawa Corporation
- Landis & Gyr Systems, Inc.
- Logica plc
- Miner and Miner Consulting Engineers, Inc.

Digital empowers you via revolutionary AXP technology running world-class partner applications for the utilities industry.

- Power Technologies, Inc.
- Powertech Laboratories, Inc.
- QEI, Inc.
- SAIC
- Scientific Atlanta, Inc.
- Smallworld Systems Ltd.
- Synercom, Inc.
- Systems and Computer Technology, Inc. (SCT)
- Tellus Corp.
- The System Works, Inc.
- Unified Information, Inc.

Our extensive portfolio of offerings from these world-class suppliers gives you the freedom to select the best solution for your utility.

See how the Alpha AXP platform can help you quickly restore customer service. Request your FREE utilities video.

CALL 1-800 DIGITAL
(1-800-344-4825) and reference JBQ.

Introducing WordPerfect for OpenVMS

This past spring, Digital said yes to an agreement with WordPerfect by endorsing WordPerfect word processing software for the OpenVMS operating system. We will work closely with WordPerfect Corporation, based in Orem, Utah, to integrate this software more

closely with our ALL-IN-1 office automation suite. Offering the industry's leading preferred word processing application as an option with ALL-IN-1 is proof of Digital's commitment to businesses utilizing the ALL-IN-1 product.

The WordPerfect for OpenVMS word processing application will be offered as an upgrade option for WPS-PLUS users in our ALL-IN-1 Integrated Office System, and as a migration option for users of WPS-PLUS on OpenVMS. ALL-IN-1 V3.1 includes a new functional release of WPS-PLUS.

Special Offer for ALL-IN-1 WPS-PLUS Users

If you are an existing ALL-IN-1 WPS-PLUS user who wants to upgrade to WordPerfect, or a WPS-PLUS for OpenVMS user who wants to migrate to WordPerfect, we've got the deal for you. Now you can buy WordPerfect 5.1 for OpenVMS for $109 per user (or less, depending on quantities ordered). What's more, your purchase will entitle you to receive WordPerfect 6.0 for OpenVMS at no extra charge. WordPerfect 6.0 for OpenVMS will offer many of the same functions and benefits as version 6.0 of the software running on other hardware.

To order WordPerfect 5.1 for OpenVMS, call 1-800-DIGITAL, press 1, reference JBU, and ask for the WPS-PLUS to WordPerfect migration upgrade (part number 32Y). For prepurchase technical assistance, press 2.

CALL 1-800 DIGITAL
(1-800-344-4825) and reference JBU.

Purchase through the PowerChannel

And Save Time and Money

You want to buy solutions, not just hardware platforms. You also want a simple ordering process with few, if any, configuration hassles. We hear you. And we're responding to your needs. When it comes to purchasing powerful hardware and software solutions, Digital's PowerChannel Program helps you do so with ease.

Through the PowerChannel Program, Digital has established partnerships with selected software vendors (such as Oracle, Parametric Technology, and Viewlogic) and channels business partners to provide you with discounted, pre-optimized hardware, software, and peripheral configurations.

You want to buy solutions, not just hardware platforms. You also want a simple ordering process with few, if any, configuration hassles. We hear you. And we're responding to your needs.

In the future, third-party hardware, installation of software applications, and engineering optimization may be added to the packages to provide you with a total, value-added solution that's perfect for your business.

How to Order

To order a PowerChannel package, simply call 1-800-DIGITAL. For order placement, press 1 after the prompt. Should you want details on specific configurations, pricing, discounts, or product information, press 2 after the prompt. Digital will automatically validate your order and check for proof of software purchase. Literature for each configured package within the PowerChannel Program is available through Digital's Alpha AXP FAST Fax service at 1-800-842-7027.

To order your specially priced and configured package,
CALL 1-800 DIGITAL
(1-800-344-4825) and reference JBT.

These PowerChannel packages are available today:

APPLICATION	HARDWARE/ OPERATING SYSTEM	PART NUMBER
Adra Systems		
CADRA	DECpc AXP 150/Windows NT	CS-CPAD1-AA/AB/AC
CADRA	DEC 3000-300LX/OSF	CS-CPAD1-DA/DB
ASK Group		
ASK Ingres 6.4	Digital 2100 A500/OSF	CS-CPIN1-3A
ASK Ingres 6.4	Digital 2100 A500/OSF	CS-CPIN1-6A
Cadence		
ECAD Suite	DEC 3000-300X/OSF	CS-CPCA1-EA/EB/EC
ECAD Suite	DEC 3000-600/OSF	CS-CPCA1-FA/FB/FC
ECAD Suite	DEC 3000-800/OSF	CS-CPCA1-GA/GB/GC
ESRI		
ARC/INFO	Digital 2100 A500/OSF	CS-CPES1-3A
	DEC 3000 Model 300X/OSF	CS-CPES1-EA/EB/EC
Informix		
INFORMIX-OnLine	Digital 2100 A500/OSF (Development)	CS-CPIX1-3A
INFORMIX-OnLine	Digital 2100 A500/OSF (Departmental)	CS-CPIX1-6A
INFORMIX-OnLine	Digital 2100 A500/OSF (Divisional)	CS-CPIX1-9A
Mentor		
ECAD Suite	DEC 3000-300X/OSF	CS-CPMT1-EA/EB/EC
ECAD Suite	DEC 3000-600/OSF	CS-CPMT1-FA/FB/FC
ECAD Suite	DEC 3000-800/OSF	CS-CPMT1-GA/GB/GC
Microsoft		
SQL Server	Digital 2100 A500/Windows NT Server (Departmental)	CS-CPMS1-1A
SQL Server	Digital 2100 A500/Windows NT Server (Enterprise)	CS-CPMS1-4A
Oracle		
ORACLE	Digital 2100 A500/OSF	CS-CPOR1-3A
ORACLE	Digital 2100 A500/OpenVMS	CS-CPOR1-2A
ORACLE	Digital 2100 A600/OpenVMS	CS-CPOR2-2A/2B
Sapiens		
Ideo (SMARTSTAR)	DEC 3000-300X/OSF	CS-CPSP1-EA/EB/EC
SDRC		
I-DEAS	DEC 3000-600/OpenVMS	CS-CPSD1-JA/JB/JC
I-DEAS	DEC 3000-600/OSF	CS-CPSD1-FA/FB/FC
I-DEAS	DEC 3000-300X/OpenVMS	CS-CPSD1-HA/HB/HC
I-DEAS	DEC 3000-300X/OSF	CS-CPSD1-EA/EB/EC
Sybase		
SQL Server 10	Digital 2100 A500/OSF (Development)	CS-CPSY1-3A
SQL Server 10	Digital 2100 A500/OSF (Production)	CS-CPSY1-6A
SQL Server 10	Digital 2100 A600/OpenVMS	CS-CPSY2-2A/2B
Viewlogic		
Powerview	DEC 3000-300LX/OSF	CS-CPVL1-DA/DB/DC
Powerview	DEC 3000-600/OSF	CS-CPVL2-FA/FB/FC

For Text and Document Retrieval, You Need TARGET->SMART SEARCH

With the increasing amount of documentation and other textual information generated by your business on a daily basis, TARGET->SMART SEARCH — an advanced knowledge-based application for text and document retrieval — can play a key role in your information system strategy.

TARGET->SMART SEARCH, developed by Target Systems in conjunction with Digital, allows for the free-form searching of textual database, articles, and other document bases.

What's more, you can specify the information you see through a series of either English or Boolean statements. The system then searches up to 64 databases at a time for occurrences of the word, or string of words that has been specified. Queries are conducted on the full text and the article titles.

Beyond the obvious Customer Help Desk applications, TARGET->SMART SEARCH may be applied to manage a variety of information needs: tax law, legal issues, government regulations, healthcare policies, scientific research, contract analysis, and more.

TARGET->SMART SEARCH for OpenVMS is available today, with other platform availability slated for the near future. Site and corporate-wide licenses are also available.

Purchase price is $7,750 to $15,495, depending on the size of the host processor.

For more information or to order TARGET->SMART SEARCH, call
1-800-233-3493

DIGITAL Update AUGUST 1994

Fast Facts on Alpha AXP

The news about Digital's Alpha AXP technology keeps getting better and better.

- In a recent benchmark, Alpha AXP systems running DEC Rdb software not only broke the world record for speed — but tripled it. The official results were 3,692.02 tpsA at $4,873/tpsA.
- The new Digital 2100 Server Model A500MP, announced in April 1994, has already generated a tremendous amount of interest — plus hundreds of orders in the pipeline.
- There are more than 5,000 applications shipping on Alpha AXP systems today. To receive a copy of the Alpha AXP Applications Catalog, call your local Digital office.
- Digital recently won a $27 million order from the U.S. Department of Veterans Affairs to install 500 DECpc AXP 150 systems — along with software, associated services, and support.
- Alpha AXP systems account for 50 percent of Digital's systems revenue. This milestone was reached after only 18 months.
- Digital's Alpha AXP business alone would rank in the top 200 on the Fortune 500, based on revenue from the last four quarters.

New Alpha-ready VAX Systems Offer Superior Performance Improvements Plus Savings

Better performance means better numbers. With faster processing and improved access to corporate information, productivity naturally goes up. And that kind of increase does wonders for your bottom line. That's why there's no better time to upgrade to an Alpha-ready VAX system. With these systems, not only can you protect your current software and system investment, but you can also receive a 10 to 50 percent improvement in computing performance. As part of your move to the Alpha AXP platform, consider the following Alpha-ready VAX systems.

The VAX 7000 Model 710 System

Designed with a 137 MHz NVAX chip and more than 50 VUPs per CPU, Digital's VAX 7000 Model 710 delivers 50 percent more performance than the Model 610 — with no price increase. The VAX 7000 Model 710 is ideal for a variety of computing styles including centralized or distributed, traditional timesharing or open client/server, or commercial or technical computing. You can use this system for new business-wide applications or cluster it into existing systems. What's more, with the VAX 7000 Model 710, your path to the Alpha AXP platform is a smooth one. A simple board upgrade from the VAX platform to the Alpha AXP platform is all it takes.

The VAX 4000 Model 505A and 705A Systems

Ranked as the highest-performing member of the VAX 4000 family, the VAX 4000 Model 705A runs at an impressive 275 TPS (estimated) — but at a price in line with the earlier Model 600A. Digital's VAX 4000 Model 505A, rated at 185 TPS, is rich in CPU performance, but with the low price tag of the earlier Model 500A. In addition, you can configure industry-standard SCSI disks, tapes, and CD-ROMs in the VAX 4000 rackmount systems (Models 500A through 705A) through the HSD05 DSSI-to-SCSI controller that's now built in. The major benefit? You can protect your investment in OpenVMS clustering technology and, at the same time, acquire the flexibility to choose from a variety of industry-standard SCSI devices.

The MicroVAX 3100 Model 85 and 95 Systems

The good news is that Digital's new MicroVAX 3100 systems offer you 30 to 50 percent more performance than their predecessors (Models 80 and 90). But the best news is that you get this extra performance at no additional cost. Upgradable to Alpha AXP systems, the MicroVAX 3100 family of systems features factory-installed OpenVMS software; optional terminal, modem, and wide area networking connections; and in-cabinet board upgrades.

For more information or to order any of Digital's Alpha-ready VAX systems,

CALL 1-800 DIGITAL

(1-800-344-4825) and reference JCI.

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New Systems	Performance (TPS)†	Annual Floorspace	Annual Power	Annual Maintenance	Total Annual Operating Cost
MicroVAX 3100-95	165	$ 62	$ 110	$ 852	$ 1,024
VAX 4000-105A	180	62	147	1,824	2,033
VAX 4000-505A	185	80	521	3,576	4,178
VAX 4000-705A	275	80	521	3,576	4,178
VAX 7710	300	233	3,189	5,304	8,726
Existing Systems					
MicroVAX II	7	64	212	1,824	2,099
MicroVAX 3900	30	147	675	4,788	5,609
VAX 4000-300	60	80	527	1,956	2,564
VAX 6610	102	236	245	5,793	6,275
VAX 8550	47	174	1,962	20,160	22,237
VAX 8600	33	473	3,986	18,396	22,855

* *Reflects costs for OpenVMS Base Systems*
Floorspace = $31 per sq. ft. per year, Power = $.07 per KWH,
Maintenance = Digital monthly service charge for hardware only, Mon.– Fri., 8–5
† *Estimated transactions per second*

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Buyers' Scorecard: NetWare 3.x rates low in ease of installation, cost

By Michael Sullivan-Trainor

User satisfaction with network operating systems, like beauty, is in the eye of the beholder. More than 200 users surveyed in our Buyers' Satisfaction Scorecard gave mixed ratings to the market-leading systems.

Novell, Inc.'s NetWare 3.x received a low rating from its 50 users in terms of ease of use and cost. This despite its ubiquitous nature as the world's most widely installed network operating system and its ability to work with a vast array of low-cost third-party products through NetWare Loadable Modules.

The chief reason for the dissatisfaction with usability: low ease of installation. Nearly one in three users surveyed said installation was "com- plex and not intuitive."

"It's a little puzzling," says Robert Harbison, president of Network Integration Consultants, a Sausalito, Calif., enterprise networking consultant. "Maybe Novell didn't introduce the new installation procedures very well, like NetWare Connect and Message Handling System, but after you get through the learning curve, it's very smooth."

How the market leaders fared

All ratings are based on a 1-to-10 scale, where 10 is best. Categories are weighted by importance to the users surveyed. Response base: 50 or more users per product

OVERALL SCORE	OVERALL SCORE	OVERALL SCORE	OVERALL SCORE	OVERALL SCORE
BANYAN VINES 5.5 AND HIGHER	NOVELL NETWARE 4.X	MICROSOFT WINDOWS NT ADVANCED SERVER	IBM OS/2 LAN SERVER 3.X	NOVELL NETWARE 3.X
7.1	6.8	6.5	6.4	6.3

CATEGORIES (Listed in order of importance)	1 COMPATIBILITY	2 PERFORMANCE	3 SUPPORT	4 COST	5 EASE OF USE
BANYAN VINES 5.5 AND HIGHER	7.9	7.4	7.4	6.3	6.4
NOVELL NETWARE 4.X	7.9	7.5	6.6	6.0	6.1
MICROSOFT WINDOWS NT ADVANCED SERVER	7.6	6.4	5.8	6.9	5.9
IBM OS/2 LAN SERVER 3.X	6.9	6.9	7.2	5.9	5.4
NOVELL NETWARE 3.X	7.5	7.0	5.7	5.6	5.3

NetWare improves

Another noteworthy result is that NetWare 4.x received higher satisfaction ratings than 3.x.

NetWare 4.x features NetWare Directory Services, which can give administrators a central view of their network. But the complexity it adds to the directory tree resulted in one of the lowest ease-of-configuration management ratings.

High ratings in compatibility for NetWare 3.x were no surprise because of third-party support. But the other products offer less compatibility based on the environments they support. Microsoft Corp.'s Windows NT Advanced Server is largely compatible with Windows 3.1, for example. It is not even in sync with Microsoft's previous network operating system, LAN Manager.

IBM's OS/2 LAN Server 3.x suffers from incompatibility with non-IBM products and the fact that OS/2 is layered on top of LAN Manager. This adds another level of complexity to installation and configuration.

Banyan Systems, Inc.'s Vines 5.5, the highest satisfaction achiever, also boasts the highest-priced network operating system at $2,995 for 10 users and $14,995 for 250 users. Yet users still awarded it a competitive rating.

What's behind these seeming anomalies?

"Users evaluate what they see within their own environments," Harbison says. "Novell has taken an open platform approach; NT an everything approach; IBM an IBM approach and Banyan a Banyan approach. They all do well within their own approaches."

The vendors can be reached at the following numbers: Banyan Systems, Inc., Westboro, Mass., (800) 828-2404; IBM, Armonk, N.Y., (800) 426-2968; Novell, Inc., Provo, Utah, (800) 453-1267; Microsoft Corp., Redmond, Wash., (800) 426-9400.

This survey was conducted and tabulated by First Market Research in Austin, Texas. ■

Sullivan-Trainor is *Computerworld's* senior editor, CW Guide.

EDITOR'S NOTE

» This week's **Buyers' Satisfaction Scorecard** features an improved method of reporting ratings. Instead of the raw scores obtained by each product, the charts show the ratings weighted by a user importance rating that more accurately reflects the performance of the products in the survey.

What's important in a network operating system?

Ranking is in order of importance
Survey base: 200 users

1 COMPATIBILITY
- Desktop operating environment compatibility
- Server operating environment compatibility
- Installed applications compatibility
- Windows 3.1 compatibility

2 PERFORMANCE
- Efficiency of operation
- Ability to recover from failures
- Speed of operation
- Consistency of data transmission
- Efficient use of memory

3 SUPPORT
- Responsiveness of vendor's service
- Quality of vendor's support

4 COST
- Acquisition and maintenance costs
- Value for the dollar

5 EASE OF USE
- Ease of installation
- Ease of configuration management
- Ease of security management

Firing Line: Artisoft's LANtastic 6.0, a viable alternative for smaller networks

LANTASTIC 6.0

Computerworld's Firing Line is an evaluation based on interviews with major users at corporate and educational installations. The product under evaluation is being used in live application environments.

- LANtastic 6.0 is a peer-to-peer network operating system built on a per-node basis and designed to connect small to medium-size groups of PCs.
- The modular design of Version 6.0 allows users to install only those functions needed, reducing memory requirements while increasing speed and efficiency.

Despite their predominance in large companies, enterprise network operating systems are not the only choice for network managers. For workgroups, peer-to-peer networks can be a low-cost alternative to enterprise systems. Artisoft, Inc.'s LANtastic, the market leader in this second tier (see chart below for other peer-to-peer systems), transforms the connected PCs into not only clients but servers as well, allowing users to access shared files and applications. Aiming to meet the needs of large workgroups, Artisoft recently added functionality and increased its flexibility in Version 6.0.

Evaluators for this survey included a bank, an engineering consultant, an electronics manufacturer and a software consultant.

COMPATIBLE OPERATING ENVIRONMENTS

One of the most significant features of LANtastic is its universal client technology, which allows seamless connectivity to Server Message Block-based networks such as Microsoft Corp.'s LAN Manager and Windows NT and IBM's LAN Server. Artisoft has also licensed Novell, Inc.'s NetWare Core Protocols, giving Version 6.0 workstations access to NetWare 2, 3 and 4 servers for file and print services.

Manufacturer: "In older versions we would have to manually change some settings, but Version 6.0 puts the proper drivers in the right place."

EASE OF CONFIGURATION MANAGEMENT

Users found configuring and monitoring a basic network setup was extremely easy, but they had difficulty trying to give special access privileges.

Bank: "It's easy to allocate resources for files and give everyone their read, look and execute capabilities, but it gets very tricky when limiting read access to just certain individuals."

SPEED OF OPERATION

Version 6.0 is now modular, allowing users to load only the features needed, thereby lightening the performance load.

Manufacturer: "Its significantly better than Version 5.0, but it's difficult to tell how much of the improvement is from the new version and how much is from our hardware upgrades."

RECOVERY FROM FAILURES

Version 6.0 includes auto-retry on disconnect, which automatically attempts to reconnect any broken server connection.

Engineering consultant: "If a connection is lost, our users don't have to relog. All we need to do is click on the icon, and it remakes the previous connection."

SERVICE AND SUPPORT

Engineering consultant: "Their support is great once you get a hold of them. The problem is getting a hold of them." ■

Other peer-to-peer network operating systems

- **AppleTalk** from Apple Computer, Inc. Cupertino, Calif. (800) 776-2333
- **Coactive Connector** from Coactive Computing Corp. Belmont, Calif. (800) 825-2638
- **Desk to Desk** from CBIS, Inc., Norcross, Ga. (800) 344-8426
- **InvisibleLAN** from Invisible Software, Inc. Foster City, Calif. (800) 982-2962
- **LANLink Professional** from Robertson-Caruso & Associates, Inc. Atlanta, Ga. (404) 512-0600
- **Microsoft Windows for Workgroups** from Microsoft Corp. Redmond, Wash. (800) 426-9400
- **MosesALL** from Moses Computers, Inc. Los Gatos, Calif. (800) 882-6673
- **Pathworks** from Digital Equipment Corp. Maynard, Mass. (800) 344-4825
- **Personal NetWare** from Novell, Inc. Provo, Utah (800) 453-1267
- **PowerLan** from Performance Technology, Inc. San Antonio, Texas (800) 433-5267
- **Products LANstep** from Hayes Microcomputer Products, Inc. Atlanta, Ga. (800) 964-2937
- **SilverNet-OS** from Net-Source Inc. Santa Clara, Calif. (408) 246-1108
- **Simply LANtastic** from Artisoft, Inc. Tucson, Ariz. (800) 809-2092
- **10Net LAN** from Tiara Computer Systems, Inc. Mountain View, Calif. (800) 638-4272

Artisoft's LANtastic 6.0

Artisoft, Inc., Tucson, Ariz. (602) 670-7100

The total score is a weighted average based on the importance of each category to users. Ratings are based on user expectations on a 1-to-5 scale, where 1 is below expectations and 5 is above expectations. Categories are presented in order of importance to users.

3.3	**TOTAL SCORE**
4.0	COMPATIBILITY WITH INSTALLED APPLICATIONS
4.0	COMPATIBILITY WITH OPERATING ENVIRONMENT
3.2	RECOVERY FROM FAILURES
4.3	DATA TRANSMISSION CONSISTENCY
3.2	SERVICE
4.0	SPEED AND EFFICIENCY
4.0	SECURITY MANAGEMENT
3.7	CONFIGURATION MANAGEMENT
4.0	COST
4.0	EASE OF INSTALLATION

LANtastic's recovery was efficient and worked as expected, users said. Their problems were with cabling and other hardware.

Users liked the quality of Artisoft's support; getting through to the support staff is where they had all their problems.

ARTISOFT RESPONDS

Viewing the results of network changes before they take effect is possible. The effects users are viewing as a result of their changes to the network do not take effect until the net_mgr program is exited. Changes can be reversed before they go through.

The new Monitor and Managed Network Activity screen will pick up only those clients running LANtastic Version 6.0. Clients using Version 5.0 will need to upgrade to take advantage of this function.

Faxing does not need to go through LANtastic's mail systems. When you choose the fax gateway as a printer and start printing, a pop-up window will appear and ask you for dialing information. For more information, see readme2.doc

Written by Computerworld *senior researcher Kevin Burden.*

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23. Dir./Mgr. Sys. Development, Sys. Architecture
31. Programming Management, Software Developers
41. Engineering, Scientific, R&D, Tech. Mgt.
60. Sys. Integrators/VARs/Consulting Mgt.

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12. Vice President, Asst. VP
13. Treasurer, Controller, Financial Officer

DEPARTMENTAL MANAGEMENT
51. Sales & Mktg. Management
70. Medical, Legal, Accounting Mgt.

OTHER PROFESSIONAL MANAGEMENT
80. Information Centers/Libraries, Educators, Journalists, Students
90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply)

Operating Systems
(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep

App. Development Products ❑ Yes ❑ No
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60. Government - State/Federal/Local
65. Communications Systems/Public Utilities/ Transportation
70. Mining/Construction/Petroleum/Refining/Agric.
80. Manufacturer of Computers, Computer-Related Systems or Peripherals
85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
90. Computer/Peripheral Dealer/Dist./ Retailer
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(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep

App. Development Products ❑ Yes ❑ No
Networking Products ❑ Yes ❑ No

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Turn to the New
Application Developer's Toolbox
on Page 119.

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MAKE WAY FOR WIZARDS

Full-time, on-line teachers attempt to prove that software really can make life easier rather than more difficult. But how successful are they?

STELLA JOHNSON

Jared Spool, founder of User Interface Engineering: *'We really haven't seen a good Wizard yet'*

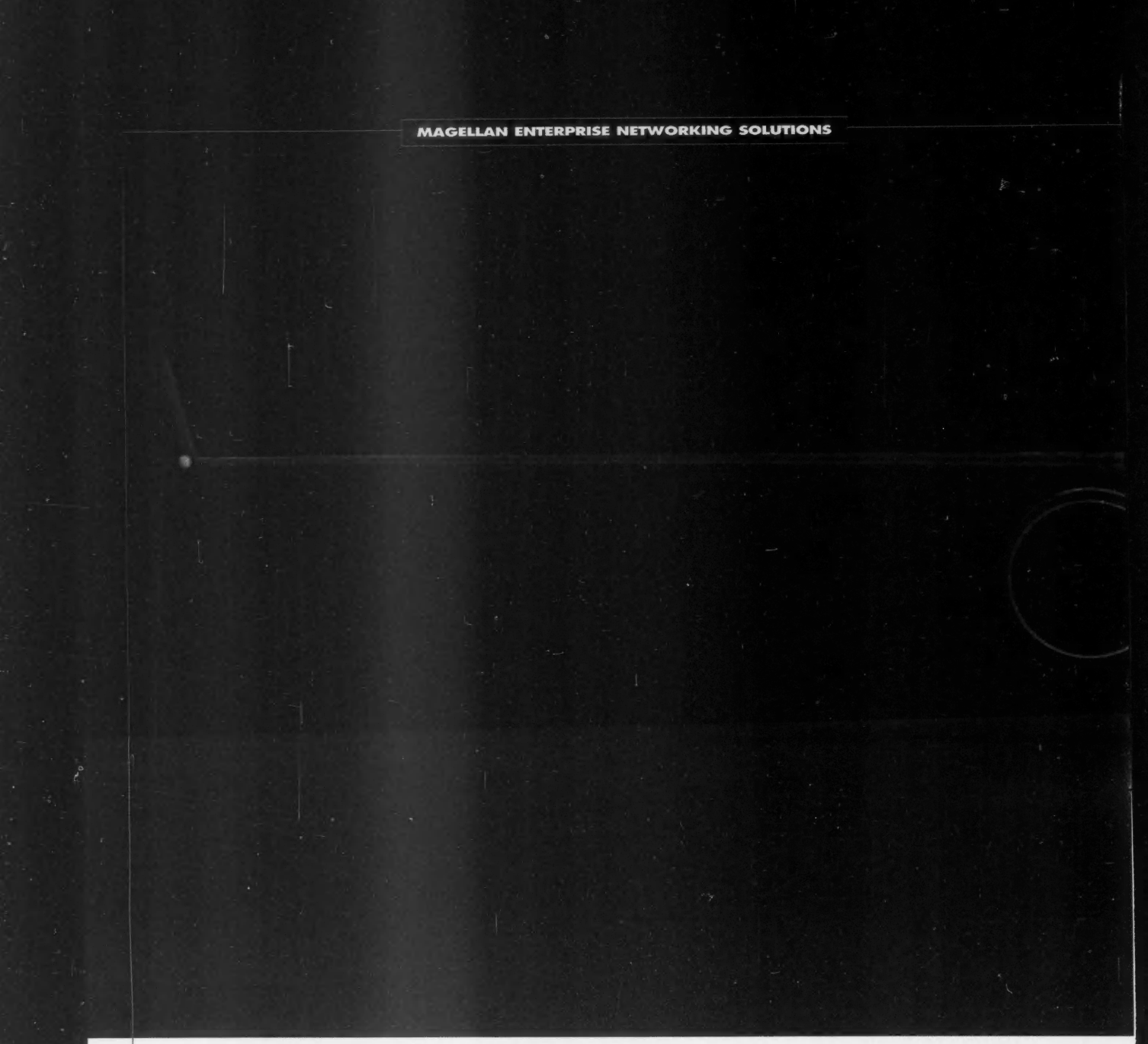
If there's one thing computer users really need, it's help. Even the most sophisticated among us don't have time to master the hundreds of new features that keep popping up in application software. The result is wasted time, lost productivity and underused computing power.

With that in mind, software makers are beefing up their word processors, spreadsheets, graphics and publishing programs with a new breed of on-line help. Known as Wizards (coined by Microsoft Corp.), Coaches (WordPerfect Corp.), Tutors (Borland International, Inc.) and Advisers (Software Publishing Corp.), these systems provide highly specific ways to help users work smarter.

The systems are not intended to solve rudimentary problems such as "Where's the undelete key?" or "How do I get back into Windows?" Rather, they offer easy ways to perform tedious tasks such as a mail merge and provide prepro-

Wizards, *page 102*

BY BRONWYN FRYER



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Wizards

CONTINUED FROM PAGE 99

grammed forms such as invoices, outlines or other business documents, which can be used as is or customized to suit individual needs.

The help systems are named for the way they are designed to work: Wizards veil their tricks; Coaches guide users through the steps of performing a task. But how well do they work? Do they represent the next generation of on-line help?

To find out, *Computerworld* asked Jared Spool, founding principal of User Interface Engineering in Andover, Mass. He says that the advent of these help systems is a step in the right direction, but they have a long way to go. Unfortunately, he says, for now they won't increase productivity, slash the high cost of technical support or eliminate the need for help desks.

Before they can work that kind of magic, Spool says, software vendors need to acquire a far better understanding of how users like to use applications. What's more, they need to replace the cryptic language used to describe software functions with terms that make practical business sense. As he tells Bronwyn Fryer in the following interview, in their current incarnation, Wizards — a term he uses to refer to all vendors' help systems — do more to confuse than to help us use software.

Q. What does your company, User Interface Engineering, do?

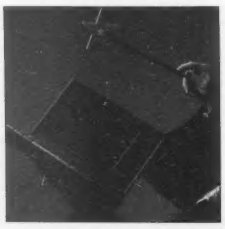
A. We consult to various companies and set up user observation labs. We also do studies. For example, we wrote the productivity study on spreadsheets for Lotus Development Corp. We set up the labs to observe how users work and provide vendors with feedback on which features users need from on-line help functions. So we've learned a lot about functions such as Wizards in our practice.

Q. What is the origin of so-called Wizards, Experts or Coaches?

A. Companies continuously ask us how developers can help users work their way through complex procedures. Our answer is Wizards. We used to call this kind of technology, "Hey Al," named after the common experience of standing up and saying: "Hey Al! How do I do this?" Now Wizards are trying to replace Al. Instead of giving examples, as most on-line help functions do, Wizards use your problem as the basis for the solution. It's quasi-magical.

Designers try to hide the detail like a magician hides the details of the trick. Through the use of complicated interface designs, Wizards say, "If you tell me only a few things, then I will create a chart for you that is just what you wanted."

Users used to shout: "Hey Al! How do you do this?" Now Wizards are replacing Al.



Q. How did on-line tutorials evolve into Wizards, Experts or Coaches?

A. After the introduction of on-line tutorials, Lotus' Ami Pro and Microsoft's Word started using these dialog screens to help users with mail merge. There was no name for them. They were simply graphic boxes with arrows that functioned as maps that were half-tutorial, half-dialog box. The first Wizards appeared in Microsoft Publisher. They gave users a guided tour of styles, showing them how to choose, for example, whether to place letterhead on the top or bottom of a business document. They were kind of like templates but with a friendlier face.

Q. Based on what you've observed in user labs, how effective are these kinds of help functions?

A. We've found that as people walk through five screens in the Excel Chart Wizard, for example, the terminology in the screens is confusing. It got them thinking about how to fix a chart that didn't need fixing. Users would walk through the five screens, pressing the Chart Wizard button again and again. Up would come the first screen, the fourth and fifth screens, but they couldn't get to the second and third screens without starting all over again. Plus, the Chart Wizard only works for simple charts with a half-dozen rows and columns.

The Function Wizard in Excel, too, is problematic. It's supposed to help people use spreadsheet functions. If you don't know how to calculate the interest on a loan, it's supposed to walk you through it and figure out what to type in. But it assumes you know these technical, jargony phrases such as "logical trest" and "argument." Contrast that to the help in Lotus 1-2-3, in which the chart does clever things. If it notices text, for example, it creates a title. It can detect the presence of labels. The people we observed were able to get charts on the screen faster, and they were more likely to create the chart they wanted.

Q. What are the most common problems users have with on-line tutorials?

A. If they are too detailed, they bore users fast. If they lack substance, they don't help. They also have the bad habit of making you too aware you're being trained. The examples have nothing to do with your actual work. A user should be able to say immediately, "Oh, I can see how that translates into my business problem."

Q. What are the problems with Wizards, as software developers are implementing them now?

A. Here's an example. Let's say you are a user. You tell Merlin, "Make me a husband." Merlin asks, "Male or female?" You answer "Male," and he then asks "Caucasian or Asian?" You choose one, and the process continues. After 40 questions, the guy appears. He's not what you expected. So Merlin asks again: "Male or female?" That's the problem with Wizards. In the Chart Wizard, it's worse. It makes you start from the middle; it doesn't let you change the things you already answered. And 50% of the time it doesn't ask you that question again. The Microsoft Publisher Wizard is better. You go through the questions only once per document; the answers are global and they stick. It works well, and users are happy with it. Wizards are a good idea for heavily procedural activities such as mail merge or creating a database, but we have yet to see an implementation that knocks our socks off.

Wizards are quasi-magical. Their designers shield you from detail like magicians hide from you the tricks of their trade.

Q. What characteristics make for a good Wizard?

A. We really haven't seen a good Wizard yet. Microsoft Publisher is the best. Users with no desktop publishing experience can create sophisticated newsletters with it. It asks which of five brochure flavors you want. It lays out the page. It brought publishing to the masses.

Q. Do Wizards currently help or hinder productivity?

A. I'd be suspicious of anything that claims its Wizards improve productivity. They usually have a negative effect by confusing novices and slowing down expert users. Skip Wizards for now, and wait for the next generation. A lot of people are working on the problem, and there's great potential.

Q. When will we see a good Wizard?

A. It will probably be at least a year. People developing these kinds of help functions have to take a close look at what they are trying to accomplish first. It's not a straightforward thing. ■

Fryer is a free-lance writer in Boulder Creek, Calif.

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Computer Careers

Grace under FIRE

There's no magic solution for managing a staff, and the stress can wreak havoc on your personal life. The solution: Put it in perspective and minimize potential hazards.

By Kate Colborn

To separate her home life from her professional life, Catherine Boivie, director of computer services for the city of Etobicoke in Ontario, visualizes "parking the work" and leaving it behind at the end of a day.

For Boivie and other information systems managers, such measures are key to keeping their sanity intact. However, it's a task that's getting more difficult.

The pressure of running a department, managing a staff and having some semblance of a life outside the office takes its toll. According to *Computerworld*'s Job Satisfaction Survey [CW, May 30], for example, more than 60% of IS middle managers say their stress level is higher than it was a year ago. Increased work loads, budget restraints and staff reductions are generally to blame, but managerial duties often tip the scales.

While managers say they handle the pressure gracefully, it's easier said than done. For example, Dan Holtzman, a network manager at the Transplantation Institute of the University of Pittsburgh Medical Center, says he is so keyed up by day's end, he needs several hours to unwind. By then, "It's time to go to bed."

And technology doesn't help. Pagers, PCs, voice mail and electronic mail follow you home, never giving you the chance to rest. Some managers log on to the system each evening to check on jobs running overnight. Most wear beepers.

So how do they cope? Some jog, bike or slam golf balls. "It doesn't help my swing, but it takes out some frustration," says Jack Heck, IS manager at Microelectronic Modules Corp. in New Berlin, Wis.

Others work hard to separate their professional and private lives. "I try not to associate socially with people from the office," says Doug Beard, IS manager at Sencore in Sioux Falls, S.D.

For most, making a clean break for several days saves their sanity. One IS manager retreats to the mountains for a week three to four times a year. Another IS manager, David Cole, at Mobil Natural Gas, Inc. in Houston, leaves town for a few days every six to eight weeks. "I don't carry a beeper, and the phones didn't work at the last place I went," he says.

One factor contributing to IS managers' stress levels, experts say, is that many choose their jobs because they want to manage data, not personalities.

"Stress comes from people, not data or actual task work," says Anne Hart, president of Personality Assessment Communications in San Diego. "What bothers [IS managers] most is dealing with the variety of personalities they find."

To minimize stress, Hart suggests preventing personality clashes before they occur. In her work, Hart uses a series of tests that assign people to one of 16 personality types. Once personalities are identified, it's easier to find ways to work together.

Easing tension

While most IS managers aren't in a position to administer complex personality tests, they can ask each staff member to develop a daily or weekly list detailing what they need from each coworker. Lists could include an explanation of a specific assignment or when access to certain information is required.

According to Hart, such lists help clarify each party's needs and ease the tension in the manager/employee relationship. In addition to the lists, managers and their staffs are encouraged to discuss and agree on necessities such as the feedback and motivation needed to complete jobs.

Managers who have given employees a lot of autonomy say they have made their jobs easier. Ed Stroot, IS manager at HealthCare Purchasing Partners, a Minneapolis-based group purchasing organization and software provider, has given members of his staff free rein to organize their work loads as they see fit. "If I had to go back to directing the day-to-day activities of my people, I'd hate it," he says. Empowerment is a good way to share the stress. ■

Colborn is a free-lance writer in Moultonboro, N.H., who writes about technical careers.

Seeing eye to eye

Staff motivation is key, but opinions vary on the skills IS managers need to inspire their staffs. To eliminate misunderstandings, be up front about your methods.

TOP MOTIVATIONAL SKILLS:

What IS managers do:

1. Ability to delegate
2. Flexibility
3. Ability to give direct feedback
4. Willingness to defer to knowledge of subordinates

What their staffs want:

1. Ability to give direct feedback
2. Organizational skills/willingness to defer to knowledge of subordinates
3. Ability to delegate
4. Willingness to champion staff

Base: 249 IS middle managers, 187 IS professionals
Source: Computerworld's 1994 Satisfaction Survey

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OBJECT Lesson

OLE and OpenDoc are battling for developers' mind share. *So which deserves more attention?*

By Bronwyn Fryer

Despite the call to jump on the object-oriented bandwagon, developers facing the transition to object-oriented programming may be in a quandary when it comes to choosing whose specification to follow.

Microsoft Corp. currently owns the market for object-oriented application development through its Object Linking and Embedding (OLE) architecture. According to X/Open Co. in Menlo Park, Calif., nearly one-third of corporate information systems departments surveyed plan to commit to OLE this year, joining the millions of workers who already use OLE to integrate information by linking applications such as Excel and Word. OLE is also available in other Microsoft applications, including PowerPoint, Access and, later this year, Mail.

OpenDoc, a more recent contender, is following hard on Microsoft's heels. Developed by Component Integration Laboratories in San Francisco and currently entering its beta release, OpenDoc offers a robust alternative for object-oriented developers, many analysts say.

For example, Jack Gold, senior research analyst at Meta Group, Inc. in Westport, Conn., asserts that OpenDoc has been built correctly from the ground up. "Microsoft had to retrofit the OLE 2.0 architecture around their existing OLE architecture just like Windows had to be retrofitted around DOS," Gold says.

Building blocks

However, "OpenDoc is built upon accepted industry standards such as the Object Management Group's Common Object Request Broker Architecture," Gold says. "Whenever you have a broad specification like that for a foundation, you're bound to have a superior architecture."

Another key to OpenDoc's technical superiority, Gold says, is that it allows inheritance — following a vertical linking structure — among objects, rather than aggregations, or a flat linking structure.

Conversely, an object-oriented architecture that lets developers set up inheritances offers the potential for more complex applications, OpenDoc proponents claim.

"OpenDoc is truly object-based, where OLE is really a function call redirection system with the name 'object' attached," says David Pollak, president of Athena Design, Inc., a Boston-based spreadsheet development company that bases its products on OpenDoc.

At the same time, Pollak says, the Alpha release of OpenDoc is already "damn stable" and much easier to work with than OLE. "OLE is very complex to program," says Bill Cornfield, president of the Windows Support Group, a client/server consulting firm in New York.

Easier on developers

In fact, CI Labs claims OpenDoc applications require developers to provide one interface and 50 functions, while the same application in OLE requires 13 interfaces and 126 functions. OLE "requires deep expertise and concentrated learning. The reference manual alone is two volumes," Cornfield says.

> According to X/Open Co. in Menlo Park, Calif., nearly one-third of 200 corporate IS departments surveyed plan to commit to OLE this year.

Choosing between the two object-oriented architectures may seem difficult from current perspectives, but the fact that there is an alternative to OLE is ultimately healthy, analysts say. "There's not going to be a single winner in this battle," Gold says. "There will be two alternatives."

The key, say advocates on both sides, will be the availability of third-party tools that ease development in both OLE 2.0 and OpenDoc.

"Microsoft is trying to build OLE-aware controls into Visual Basic, and WordPerfect has introduced a tool called SOLE [Seamless OLE] to provide an environment where one component can work both in OLE and OpenDoc," Gold says. "Whoever makes life easier for developers to work in will win." ■

TWICE THE CLASS TIME

How difficult is it to learn OLE and OpenDoc? "OLE is very complex," says David Pollak, president of Athena Design. If it takes four hours to develop a single function in OpenDoc, it would take days to write the same function in OLE, Pollak estimates.

Microsoft argues that OLE 2.0 is the basis for Cairo and more complex than an OpenDoc specification, which is aimed only at creating compound documents. Yet OLE proponents expect the current learning curve to be significantly diminished with the upcoming release of OLE 3.0.

Despite the difficulties of working with OLE, most Microsoft-centric shops will stick with it. "OpenDoc is much easier to work with, and if we were an OS/2 shop, the decision to go with OpenDoc would be a piece of cake," says Alex Kalpaxis, vice president of client/server engineering at Banker's Trust in New York. His firm develops financial and trading applications in OLE. Adds Pollak: "If you're in the Microsoft camp, that's all there is."

To date, comparatively few firms have called CI Labs for a copy of OpenDoc, and analysts predict it will be at least three to six months before programmers can readily receive OpenDoc training.

— Bronwyn Fryer

Fryer is a free-lance writer in Boulder Creek, Calif.

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APPLICATIONS ANALYST-PROGRAMMER Must have BS in CS, Eng or Math w/2yrs exp in job or 2yrs exp in sys anal. Must have 2 yrs exp dvlpg comp sys for bus appl's. Must be proficient in: MS-DOS, UNIX, MVS/ESA, DB2, CICS, LEX, YACC, C, C++, COBOL, MS-WINDOWS (SDK) & CASETOOLS. Must be willing to relocate throughout US for varying periods of time. Will provide applications dvlpmnt & s/ware eng svc's in-house or at client locations; analyze, plan, dsgn, dvlp, test, modify & document comp prog, evaluate user needs & analyze existing sys; formulate plan outlining steps req'd to dvlp prog, using structured anal & dsgn; prepare flowcharts & diagrams & dsgn comp terminal screen displays to illustrate sequence of steps involved & to accomplish user goals; convert project specs, using flowcharts & diagrams, into sequence of detailed instruct's & logical steps for coding into lang processable by comp; enter codes & commands into comp to run & test prog; write documentation to describe prog dvlpmnt, logic, coding & corrections; assist users in solving prob w/sys & assist in manual writing for users. Salary $42,000/yr. 40 hpw. Svrl pos avail. Apply in person or by resume to: GA Dept of Labor, 1535 Atkinson Road, Lawrenceville, GA 30243-5601 or nearest GA DOL Field Service Office. Refer to JO #GA5758312.

Manager, Hardware Systems and Database Administrator

The Manager, Hardware Systems and Database Administrator is a professional, non-faculty, managerial position in the department of Agricultural Administrative Computing at Mississippi State University. This position is a 12-month appointment that reports directly to the Head of the department who has direct supervisory performance evaluation responsibility. This manager has some supervisory responsibility for other professionals at his disposal for carrying out necessary support duties in meeting the overall goals of the department. The Manager's duties include, but are not limited to: 1) maintenance of all computer systems software and hardware, 2) systems and networks operations, 3) database administration, and 4) support some software applications systems. Minimum qualifications: Bachelor's degree in Computer Science or related field. Extensive experience in the management of hardware and networks in a UNIX and MS-DOS environment. Proven ability to provide systems support for database applications on small and large-scale hardware and software systems. Additional desirable qualifications: Experience with Data General and SUN hardware and operating systems. Experience with ORACLE and INFOS II database software. C/C++, CQCS, Novell, MS-DOS Windows. Supervisory experience of other professionals in an end-user support environment. Experience working in a college or university environment. Salary will be commensurate with qualifications and experience. Applications will be accepted through September 15, 1994 or until position is filled. **Send resume, transcript, and three letters of reference to: Mr. Michael A. Argo, Head, Agricultural Administrative Computing, Mississippi State University, Box 9850, Mississippi State, MS 39762-9850**

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APPLICATIONS ANALYST-PROGRAMMER Must have BS in CS, Eng or Math w/2yrs exp in job or 2yrs exp in sys anal. Must have 2 yrs exp dvlpg comp sys for bus appl's. Must be proficient in: UNIX, MVS/ESA, VM/ESA, DB2, CICS, LEX, YACC, C, PL/1, PL/AS, REXX, ASSEMBLER & CASETOOLS. Must be willing to relocate throughout US for varying periods of time. Will provide applications dvlpmnt & s/ware eng svc's in-house or at client locations; analyze, plan, dsgn, dvlp, test, modify & document comp prog, evaluate user needs & analyze existing sys; formulate plan outlining steps req'd to dvlp prog, using structured anal & dsgn; prepare flowcharts & diagrams & dsgn comp terminal screen displays to illustrate sequence of steps involved & to accomplish user goals; convert project specs, using flowcharts & diagrams, into sequence of detailed instruct's & logical steps for coding into lang processable by comp; enter codes & commands into comp to run & test prog; write documentation to describe prog dvlpmnt, logic, coding & corrections; assist users in solving prob w/sys & assist in manual writing for users. Salary $42,000/yr. 40 hpw. Svrl pos avail. Apply in person or by resume to: GA Dept of Labor, 1535 Atkinson Road, Lawrenceville, GA 30243-5601 or nearest DOL Field Service Office. Refer to JO #GA 5756327.

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Database Administrator - 001 DB

- BSCS and 3+ plus years experience in a related position.
- Extensive knowledge of Relational Database Concepts.
- Working knowledge of SQL.
- Proficiency in at least one of the following - Oracle 7 Unix, MS-DOS or Novell + Netware.

We offer a great place to work and an excellent benefits package.Please send or fax resume indicating job # of interest to: **Penny Scheffer Conroy, 142 N. Milpitas Blvd., Suite 187, Milpitas, CA 95035, Fax (408) 946-2333.** EOE

PROGRAMMER ANALYST (Ref: 73194) to consult with client to ascertain & define their business requirements or problem areas & utilize technical expertise to provide solutions to clients' needs; analyze, design, develop & implement computer software for clients' EDP systems; develop a software system using Finite Element Method to simulate metal forming process, & applying it to selected parts; evaluate different FEA packages; develop data translation software; pilot the system developed on selected forging parts; use SUN & SGT workstation Antares, Aries, PATRAN & Q-MESH software; C & FORTRAN language; Reqs. Master's in Mechanical Engineering, Comp., Electrical or Electronic Engineering, Systems Analysis or its equiv. & 2 yrs. exp. in job offered or 2 yrs. related exp. as a Programmer, Systems Programmer, Programmer/Analyst, Systems Analyst, Consultant, Research Assistant, Trainee, or Software Engineer. Will accept 3 yrs. college ed. plus 3 yrs. exp. in job offered or related occup. In lieu of reqd ed. & exp. Related exp. must include, in whole or part, using finite element method to simulate the metal forming process and using C; $42,000/yr. 40 hr/wk., 8:30a-5p.

PROGRAMMER ANALYST (Ref: 81694) to consult with clients to ascertain & define their business requirements or problem areas & utilize technical expertise to provide solutions to clients' needs; analyze, design, develop & implement computer software for clients' EDP systems; analyze, design & develop an Integrated Retail Item sys.; create detail design specification for Retail & Interface subsys; provide technical support to programming team; make sure coding is according to standard; provide solution to problems during user testing; provide technical support to development of applications on IBM-3090 mainframe with MVS/ESA operating sys. using INSTAL-1, DB2, CICS, COBOL II, JCL, PROEDIT, QMF, SPUFI, TSO/ISPF; IBM PC-XT with MS-DOS/WINDOWS & Design-1, EXTRA & MS-WORD; Anderson Consulting's design methodology using Design-1/Instal-1/Method-1; Reqs. Bach. in Comp. Sci., Comp., Electrical or Electronic Engineering, Systems Analysis or its equiv. & 2 yrs. exp. in job offered or 2 yrs. related exp. as a Programmer, Systems Programmer, Programmer/Analyst, Systems Analyst, Software Engineer, Consultant or Contract Programmer. Will accept 3 yrs. college ed. plus 3 yrs. exp. in job offered or related occup. In lieu of req'd ed. & exp. Related exp. must include, in whole or part, using IBM 3090, MVS/ESA, VS COBOL II, JCL, DB2, CICS, TSO/ISPF, QMF, SPUFI; $44,724/yr. 40 hr/wk., 8:30a-5p.

SOFTWARE ENGINEER (Ref: 81494) to consult with clients to ascertain & define their business requirements or problem areas & utilize technical expertise to provide solutions to clients' needs; analyze, design, develop & implement computer software for clients' EDP systems; perform user requirements study, analyze, conceptual design (including Functional Decomposition, Process Flow & Data Flow Diagrams), detailed design, logical data modelling (Normalized Entities), function point analysis or related S/W development estimation technique; estimate, plan & schedule development plans; develop S/W; prepare test plans; create test cases, Unit tests, system test (Component test & Component Regression Test), Quality test, installation, documentation, user education & ongoing support; use IBM BOOKMASTER & VM/CMS; develop IBM mainframe DOS/VSE, MVS/XA, MVS/ESA environment using CICS, COBOL, PL/I, VSAM, IMS-DS, DB/2, ISPF, TSO, JCL, SDTM, CLIST, SQL, QMF; develop AS/400, OS/400 environment in C/400 (EPM-C, ILE-C), CL/400, PL/I, AS/400, APIs, ILE-C, CL/400, PL/I, RPG/400, AS/400 Query & AS/400 configuration of resources; develop PS/2-LAN environment in IBM/C2, IBM C SET/2, Personal AS, Personal AS/DEV, OS/2 DBM, SQL, REXX/2, OS/2PC Support/400 APIs; install OS/2 Base 2.0, OS/2 ES 1.0, OS/2 DBM, IBM LAN Server 1.3, DDCS/2 1.0, configuration 5250/3270 emulation; Reqs. Bach. in Comp. Sci., Comp. Engineering, Electrical Engineering, Electronic Engineering, Systems Analysis or its equiv. & 2 yrs. exp. in job offered or 2 yrs. related exp. as a Programmer, Systems Programmer, Programmer/Analyst, Systems Analyst, Software Engineer, Consultant, Systems Engineer, Systems Representative. Will accept 3 yrs. college ed. plus 3 yrs. exp. in job offered or related occup. In lieu of req'd ed. & exp. Related exp. must include, in whole or part, information engineering & development on IBM mainframe using COBOL, CICS, VSAM, DBMS & development on AS/400; $47,000/yr. 40 hr/wk., 8:30a-5p.

PROGRAMMER ANALYST (Ref: 81594) to consult with clients to ascertain & define their business requirements or problem areas & utilize technical expertise to provide solutions to clients' needs; analyze, design, develop & implement computer software for clients' EDP systems; analyze, design & develop an Integrated languages Independent Underwriting Information System using GUI & Client-Server technologies; determine user requirements; identify process flow; write process & event-driven specifications, database design & development of database manipulation queries; set up standards for front-end user interface & backend SQL queries, technical support & unit & system testing; provide technical support for design of Information Systems using MS WINDOWS 3.X & MS SQL Server. Also using IBM 3090, ES 9000, IBM 486, MS WINDOWS SDK, MS VISUAL BASIC, MS VISUAL C++, QMF, DB2, MS DOS, OS/2, MVS; Reqs. Bach. in Comp. Sci., Comp. Engineering, Electrical Engineering, Electronic Engineering, Systems Analysis or its equiv. & 2 yrs. exp. in job offered or 2 yrs. related exp. as a Programmer, Systems Programmer, Programmer/Analyst, Systems Analyst, Software Engineer or Consultant. Will accept 3 yrs. college ed. plus 3 yrs. exp. in job offered or related occup. in lieu of req'd ed. & exp. Related exp. must include, in whole or part, design, developing, testing & implementing information systems using MS VISUAL BASIC, MICROSOFT SQL SERVER, MS WINDOWS, C, C++; $41,000/yr. 40 hr/wk., 8:30a-5p.

CONSULTANT (Ref: 73294) to consult with clients to ascertain & define their business requirements or problem areas & utilize technical expertise to provide solutions to clients' needs; analyze, design, develop & implement computer software for clients' EDP systems; process flow and data flow design, overall design for the application & meeting with the users to gather requirements; technical support for design of applications using COBOL, DB2, CICS on IBM 3090, MVS/ESA, COBOL, CICS, DB2, VSAM, JCL, PRO-EDIT, REXX, CLIST, INTERTEST, QMF, CCF, FILE-AID; Reqs. Bach. in Comp. Sci., Comp. Engineering, Electrical Engineering, Electronic Engineering, Systems Analysis or its equiv. & 2 yrs. exp. in job offered or 2 yrs. related exp. as a Programmer, Systems Programmer, Programmer/Analyst, Systems Analyst, Software Engineer, Consultant, Assistant Systems Analyst. Will accept 3 yrs. college ed. plus 3 yrs. exp. in job offered or related occup. in lieu of req'd ed. & exp. Related exp. must include, in whole or part, development on IBM 3090 under MVS/ESA using VS-COBOL II, CICS, DB2, VSM, JCL, QMF, INTERTEST, FILE-AID, REXX & CLISTS; $40,000/yr. 40 hr/wk., 8:30a-5p.

PROGRAMMER ANALYST (Ref: 79914) to consult with clients to ascertain & define their business requirements or problem areas & utilize technical expertise to provide solutions to clients' needs; analyze, design, develop & implement computer software for clients' EDP systems; design & develop an integrated welfare system in a client/server environment; develop process model & data model, technical support & overall design of the staff support part of the application; meet with users to gather requirements; formally facilitate a core group of client user using FAST session techniques; use first CASE methodology, Excelerator for Windows; develop software using structured techniques (e.g. process model, data model etc.) and on-line application (HVTIP) under OS1100 operating system environment with Unisys 2200 series mainframe computers; also using UCS COBOL, LINK1100, IPF 1100, ALLY, DMS/RDMS1100, HVTIP; work on PC under MS-DOS, WINDOW 3.1, Amipro,Word for Windows; Reqs. Bach. in Comp. Sci., Comp. Engineering, Electrical or Electronic Engineering, Systems Analysis or its equiv. & 2 yrs. exp. in job offered or 2 yrs. related exp. as a Programmer, Systems Programmer, Programmer/Analyst, Systems Analyst, Software Engineer, Consultant, System Executive or Specialist. Will accept 3 yrs. college ed. plus 3 yrs. exp. in job offered or related occup. in lieu of req'd ed. & exp. Related exp. must include, in whole or part, design & develop application using FAST session techniques; Excelerator for Windows; also using OS1100, LINX1100, HVTIP, Unisys 2200 Series Mainframe Computers, UCS COBOL; $49,000/yr. 40 hr/wk., 8:30a-5p.

PROGRAMMER ANALYST (Ref: 73394) to consult with clients to ascertain & define their business requirements or problem areas & utilize technical expertise to provide solutions to clients' needs; analyze, design, develop & implement computer software for clients' EDP systems; enhance & customize CHESS (a manufacturing Control System, Software) package, including redesign its modules, database modification & system testing; analyze, design & develop new models in the area of manufacturing system; write test procedures, technical support & meet with users to identify their needs using VAX 7000-610, VAX 6000-510, VAX/VMS version V5.5-2, Pro IV, superlayer, digital command language, "C" & MS windows; Reqs. Bach. in Comp. Sci. Comp., Electrical or Electronic Engineering, Systems Analysis or its equiv. & 2 yrs. exp. in job offered or 2 yrs. related exp. as a Programmer, Systems Programmer, Programmer/Analyst, Systems Analyst, Software Engineer, Software Consultant or Systems Executive. Will accept 3 yrs. college ed. plus 3 yrs. exp. in job offered or related occup. in lieu of req'd & exp. Related exp. must include, in whole or part, design, develop modules on VAX 7000-610, VAX 6000-610, VAX 6000-510 using VAX/VMS version v5.5, PRO IV, C, DEC DCL, and CHESS; $40,000/yr. 40 hr/wk. 8:30a-5p Send resume to 7310 Woodward Ave, Rm 415, Detroit, MI 48202 & include Ref #. Employer Paid Ad.

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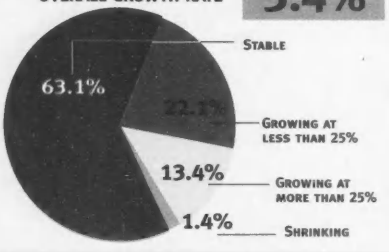

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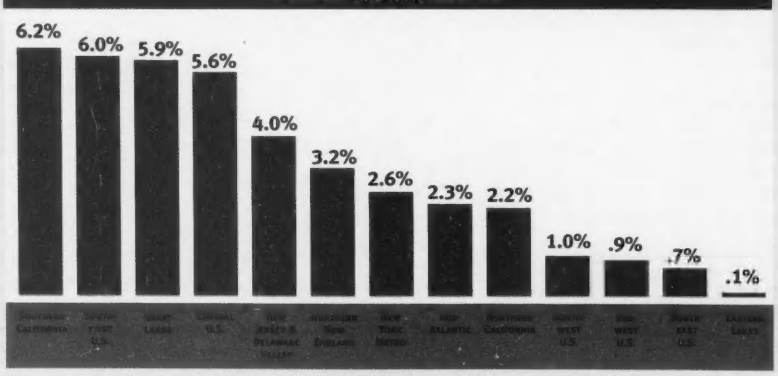

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Loosening
the remote apron strings

Corporate IS departments wield cautious control when allowing remote sites to buy their own networking products

By Lynn Haber

Computing power may be getting more distributed, but there's little question about who's in charge of network purchases for remote sites. The corporate information systems department lays out the law of the LAN.

"We can't afford our remote sites much freedom when it comes to purchasing network-related products," says Patrick Zilvitis, vice president of corporate information technology at Gillette Co. in Boston. A global organization with offices in 76 countries, Gillette has built an information technology infrastructure based on common approaches and consistency.

It all comes back to that vision thing. Without careful planning and coordination, a network is only as reliable as its weakest link. Additionally, the trend in corporate IS to take control of networking purchases is driven by a desire to ensure common systems companywide.

However, corporate IS understands the importance of being reasonable in its authority and democratic in its decision-making. That means companies such as Gillette are combining decentralized decision-making, as it relates to the needs of its decentralized businesses, with centralized control, as it relates to the organization's global business environment.

With input from key IS people representing the company's various business interests, a Gillette advisory board makes information technology policy decisions on items such as networking protocols, end-user clients, LAN operating systems and software, routers, bridges and private branch exchanges, for example.

IS also recognizes that it can't be all things to all sites. Therefore, at many companies it maintains a give-and-take relationship with its remote offices.

"The more corporate IS allows groups within the organization to make their own decisions and have some autonomy over their investments, the more invested they'll be in the systems," says Jeffrey Kaplan, director of Dataquest, Inc.'s Worldwide Services Group in Framingham, Mass. In this scenario, as long as the remote facilities select products from vendors on the corporate shopping list, they're on their own.

Moreover, according to a recent Dataquest survey of Fortune 1,000 businesses and government agencies on IS spending for system integration-type projects, which included networking, corporate IS is responsible for 50% of all budget spending. Functional departments or remote offices spend the remaining 50%.

Delegating responsibility

If the sites are international, additional savvy is required. J. D. Walther, IS manager at OPI International, Inc. in Houston, specifies purchases for all critical equipment for the company's LANs, such as servers, tape backup units, uninterruptible power supplies, LAN operating systems and printers. He also selects someone at each remote location to assume responsibility for the company's vendor relationship.

"Not only does this approach give [them] breathing room, but it helps the company establish closer ties with the remote vendor," Walther says.

The marine construction firm currently has remote sites in Bahrain, Nigeria, Singapore and Texas and an installation under way in Mexico. By taking a proactive approach to setting information technology policy, Walther says, the company has reliable and stable networks with few problems.

While most organizations understand the benefits of central IS decision-making, there are times when remote facilities are given the green light to make independent network purchases. "Remote offices that generate their own profit and loss or are financially independent business units often have independent decision-making powers," says Jeff Bruckner, managing director at the DMW Group in Montvale, N.J.

Even in circumstances where remote offices don't have the freedom to shop as they please, it's not uncommon for remote site managers to identify their requirements and initiate contact with corporate IS. Working collaboratively with remote sites is in the interest of both parties, Zilvitis says. "Never create a situation where corporate becomes the ivory tower and is not considered a business partner," he stresses.

The physical distance between corporate IS and its remote managers has the potential to create a divide between the two, but good communication combined with a common understanding of the business objectives and relation to the IS infrastructure can go a long way in creating a manageable relationship all around. ■

Haber is a free-lance writer in Boston.

Split decision

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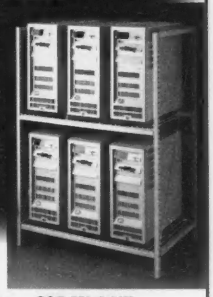

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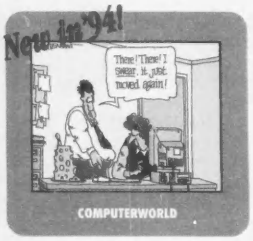

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Thursday Stock Ticker

Gainers

Percent

Magic Software Enterprises	29.5
Microage Inc.	27.1
Lotus Development	23.1
Frame Technology	22.0
Peoplesoft	21.1
Maxtor Corp.	20.6
Sierra Semiconductor	20.3
Network Systems Corp.	20.0

Dollar

Cabletron Systems	7.88
Lotus Development	7.75
Peoplesoft	7.38
Sybase Inc.	6.63
Texas Instruments	5.25
Micron Technology	5.25
Powersoft	4.75
Dell Computer Corp.(H)	4.75

Losers

Percent

MathSoft(L)	-15.0
Pinnacle Micro Inc.	-11.1
Rainbow Technologies Inc.(L)	-10.9
Cray Computer	-9.1
Sequoia Systems Inc.	-8.9
Xylogics Inc.	-8.5
Cambex Corp.	-8.4
Racotek Inc.	-8.3

Dollar

MCI Communications Corp.	-1.75
Xylogics Inc.	-1.50
Pinnacle Micro Inc.	-1.50
ITT Corp.	-1.50
Rainbow Technologies Inc.(L)	-1.25
Sprint Corp.	-1.00
Sungard Data Systems	-1.00
Bell Atlantic Corp.	-0.88

TECHNOLOGY STOCKS AS A WHOLE PUSHED FORWARD LAST WEEK, LED BY THE SURGING SEMICONDUCTOR SECTOR.

Industry Almanac

More than mainframes

With everyone closely watching IBM reorganize its business, Wall Street analysts said they feel large-systems rivals **Amdahl Corp. (AMH)**, **Tandem Computers, Inc. (TDM)** and **Unisys Corp. (UIS)** should take note of IBM's diversity to garner investor interest.

Recent restructuring aside, Amdahl still has its work cut out for it, said John Jones, an analyst at Salomon Brothers, Inc. in San Francisco. "Amdahl is clearly dependent on the mainframe," he said. "Their challenge is to develop new sources of non-mainframe revenue, and they are doing so at a relatively slow pace."

Stephen Josselyn, an analyst at International Data Corp. in Framingham, Mass., said Unisys is now targeting platforms previously used as the basis for their mainframes for new server products. Jones also said Tandem has moved ahead with a new family of products and a massively parallel architecture that is both proven and different from any other offering on the market.

"They are also being aggressive about cost cutting, something new at Tandem," Jones said. "You can't survive by spending 40 to 50 cents on the dollar for operating costs. IBM is now down to 30 cents on the dollar on operating costs."

Even though IBM's quarterly success came partly from mainframe sales [CW, July 25], reduced spending on large systems, along with new applications targeted away from mainframes, is causing pricing pressure in the market, Josselyn said. "Amdahl's recent quarterly results were pretty good in terms of profits, but revenues were down," he said. "That's going to be a trend that will continue while pricing pressures are still there."

—Tim Ouellette

Mainframes: A dead-end street?

	Aug. 20 1993	Nov. 19 1993	Jan. 21 1994	April 5 1994	June 27 1994	July 29 1994	Aug. 12 1994
Amdahl	5 1/4	4 7/8	6 3/4	6 3/4	5 3/4	6 5/8	6 7/8
Tandem	8 7/8	11	13 5/8	14 7/8	11 5/8	13 7/8	14 1/8
Unisys	11 1/8	11 5/8	12 5/8	14 3/8	8 7/8	8 3/4	8 7/8

Exch	52-Week Range			Aug. 11 Close	Wk Net Change	Wk Pct Change
Communications and Network Services						**UP 2.42%**
OTC	63.75	22.00	3 COM Corp.	52.38	2.00	4.0
NYS	45.56	36.25	AMERITECH Corp.	41.75	0.88	2.1
NYS	63.38	49.50	AT&T	53.75	-0.38	-0.7
OTC	26.50	12.75	Banyan Systems Inc.	14.75	-0.63	-4.1
NYS	69.13	49.00	Bell Atlantic Corp.	57.00	-0.88	-1.5
NYS	63.88	53.00	BellSouth Corp.	62.38	0.63	1.0
NYS	21.50	8.38	Bolt, Beranek & Newman	14.13	1.63	13.0
OTC	15.75	9.00	Brooktrout Technology	9.75	-0.50	-4.9
NYS	132.50	82.63	Cabletron Systems	103.00	7.88	8.3
OTC	43.00	10.00	Centigram Communications	12.75	-0.25	-1.9
OTC	60.25	31.50	Chipcom Corp.	49.50	2.75	5.9
OTC	40.75	18.75	Cisco Systems Inc.	21.38	0.63	3.0
OTC	18.38	9.25	Compression Labs Inc.	11.50	0.75	7.0
OTC	12.38	5.13	Computer Network Tech.	7.13	0.38	5.6
OTC	33.75	8.50	CrossComm	9.75	0.75	8.3
OTC	3.13	1.50	Data Switch Corp.	2.13	-0.13	-5.6
OTC	36.56	17.88	DSC Communications	23.50	0.44	1.9
NYS	18.63	8.25	General Datacomm Inds.	18.63	1.38	8.0
NYS	39.88	29.50	GTE Corp.	32.88	0.50	1.5
NYS	95.97	78.63	ITT Corp.	86.63	-1.50	-1.7
OTC	29.63	21.38	MCI Commmunications Corp.	21.63	-1.75	-7.5
OTC	7.75	1.56	Microcom Inc.	6.38	0.00	0.0
OTC	23.50	11.25	NetManage Inc.	17.25	2.25	15.0
OTC	7.25	3.75	Netrix Corp.	4.75	-0.25	-5.0
OTC	8.75	3.50	Network Computing Devices	3.88	0.13	3.3
NYS	11.13	7.00	Network Equipment Tech.	11.00	1.13	11.4
OTC	23.38	11.13	Network General	16.25	0.50	3.2
OTC	9.63	6.38	Network Systems Corp.	9.00	1.50	20.0
OTC	73.88	46.50	Newbridge Networks Corp.	30.63	1.38	4.7
NYS	33.75	23.50	Northern Telecom Ltd.	33.25	0.38	1.1
OTC	53.25	15.56	Novell Inc. (H)	15.56	-0.31	-2.0
NYS	48.88	33.25	Nynex Corp.	39.63	0.00	0.0
OTC	30.00	15.50	Octel Communications Corp.	21.50	1.00	4.9
OTC	18.25	9.00	Optical Data Systems Inc.	15.88	0.13	0.8
OTC	7.50	3.13	Penril Data Comm Networks	3.50	0.13	3.7
OTC	20.75	10.00	Picturetel Corp.	14.75	0.75	5.4
OTC	8.25	2.13	Proteon Inc. (L)	2.75	0.00	0.0
OTC	14.38	2.75	Racotek Inc.	4.13	-0.38	-8.3
NYS	39.63	24.88	Scientific Atlanta Inc. (H)	39.38	0.75	1.9
NYS	47.00	36.75	Southwestern Bell Corp.	43.00	1.00	2.4
NYS	40.25	31.38	Sprint Corp.	36.75	-1.00	-2.6
OTC	26.75	13.38	Standard Microsystems Corp.	16.88	1.00	6.3
OTC	34.50	17.50	Stratacom Inc. (H)	32.13	1.00	3.2
OTC	33.75	13.13	Synoptics Communications (L)	13.88	0.13	0.9
OTC	15.25	3.88	Telebit Corp.	5.13	0.38	7.9
OTC	46.00	23.00	US Robotics	29.00	2.50	9.4
NYS	50.75	38.25	US West Inc.	40.75	0.38	0.9
OTC	43.88	18.75	Wellfleet Communications	19.63	0.00	0.0
OTC	28.25	12.75	Xircom	17.25	0.50	3.0
OTC	23.00	13.00	Xylogics Inc.	16.25	-1.50	-8.5
OTC	30.00	11.25	Xyplex Inc.	16.00	-0.25	-1.5
PCs and Workstations						**UP 4.88%**
OTC	7.50	2.63	Advanced Logic Research	4.13	0.13	3.1
OTC	38.50	12.00	Apple Computer Inc.	34.31	1.31	4.0
OTC	33.00	12.50	AST Research Inc.	17.25	1.56	10.0
NYS	39.88	16.97	Compaq Computer Corp.	35.00	2.00	6.1
OTC	33.00	15.13	Dell Computer Corp. (H)	33.00	4.75	16.8
OTC	25.00	9.25	Gateway 2000 Inc.	14.63	0.63	4.5
NYS	93.63	64.38	Hewlett Packard Co.	81.75	1.88	2.3
NYS	26.88	16.50	Silicon Graphics	24.38	0.88	3.7
OTC	31.38	18.25	Sun Microsystems Inc.	24.44	1.25	5.4
NYS	50.75	28.88	Tandy Corp.	39.13	0.50	1.3
OTC	5.13	2.38	Zeos International Ltd.	3.50	-0.13	-3.4
Large Systems						**UP 2.53%**
ASE	7.88	4.38	Amdahl Corp.	6.88	0.25	3.8
NYS	7.63	3.63	Convex Computer	5.75	0.13	2.2
OTC	4.50	0.50	Cray Computer	1.25	-0.13	-9.1
NYS	33.75	19.13	Cray Research Inc.	20.88	0.00	0.0
NYS	10.75	6.63	Data General Corp.	8.25	0.38	4.8
NYS	43.13	18.25	Digital Equipment Corp.	21.38	1.13	5.6
OTC	6.38	2.38	Encore Computer Corp.	4.06	-0.19	-4.4
NYS	52.25	39.63	Harris Corp.	44.38	0.75	1.7
NYS	65.00	40.63	IBM	64.63	2.13	3.4
OTC	18.75	7.75	NetFrame	8.75	0.25	2.9
OTC	26.00	3.88	Parallan Computer	4.00	0.00	0.0
OTC	23.25	5.38	Pyramid Technology	7.25	1.00	16.0
OTC	20.00	11.13	Sequent Computer Sys.	16.56	1.06	6.9
OTC	6.84	1.75	Sequoia Systems Inc.	4.50	-0.44	-8.9
NYS	36.13	22.88	Stratus Computer Inc. (H)	36.13	1.25	3.6
NYS	16.38	8.50	Tandem Computers Inc.	14.13	0.25	1.8
OTC	30.00	3.88	TriCord Systems	5.13	0.63	13.9
NYS	16.50	8.63	Unisys Corp.	8.88	0.13	1.4
Software						**UP 4.66%**
OTC	34.50	16.25	Adobe Systems Inc.	32.88	3.88	13.4
OTC	34.50	16.25	Aldus Corp.	32.63	4.00	14.0
OTC	8.38	1.38	American Software Inc.	5.13	0.00	0.0
OTC	15.75	6.75	Ask Computer Systems	13.25	0.25	1.9
OTC	61.75	37.00	Autodesk Inc.	51.13	-0.13	-0.2
OTC	4.25	1.75	Bachman Info. Systems	2.00	0.13	6.7
OTC	32.00	20.50	BGS Systems Inc.	25.25	0.00	0.0
OTC	61.00	40.50	BMC Software Inc.	50.00	3.50	7.0
OTC	30.75	22.50	Boole & Babbage	26.50	-0.63	-2.3
OTC	20.75	8.50	Borland Int'l Inc.	13.13	0.38	2.9
OTC	25.00	6.75	Brock Control Systems Inc.	8.00	0.13	1.6
OTC	4.63	2.38	CE Software	2.81	-0.25	-6.3
ASE	30.34	6.25	Cheyenne Software Inc.	9.75	0.75	8.3
OTC	14.25	7.38	Cognos Inc.	11.25	-0.13	-1.1
NYS	44.88	27.38	Computer Associates	41.00	2.63	6.8
NYS	5.38	2.13	Computervision Corp.	3.00	0.13	4.3
OTC	48.25	21.00	Compuware Corp.	39.56	-0.19	-0.5
OTC	14.00	7.50	Comshare Inc.	9.25	-0.25	-2.6
OTC	25.00	9.63	Corel Corp.	18.63	-0.13	-0.7
OTC	7.50	3.00	Easel Corp.	3.38	-0.13	-3.6
OTC	29.25	12.25	Filenet Corp.	18.75	0.50	2.7
OTC	25.00	3.00	4th Dimension	7.00	0.25	3.7
OTC	12.50	7.25	Frame Technology	12.50	2.25	22.0
OTC	13.00	7.00	Group I Software	8.00	0.25	3.2
OTC	31.75	6.75	Gupta	12.19	0.31	2.6
OTC	12.00	5.88	Hogan Systems Inc.	7.13	-0.25	-3.4
OTC	29.50	16.00	IMRS	25.75	0.50	2.0
OTC	44.75	11.50	Information Resources (L)	11.75	-0.63	-5.1
OTC	24.50	14.25	Informix Corp.	21.38	1.75	8.9
OTC	12.38	8.75	Intergraph Corp.	10.00	0.50	5.3
OTC	8.75	2.50	Interleaf Inc.	3.38	0.38	12.5
OTC	15.50	5.75	Intersolv Inc.	12.13	-0.25	-2.0
OTC	50.00	27.00	Intuit Inc.	39.00	3.88	11.0
OTC	18.75	2.25	Knowledgeware Inc.	7.38	0.88	13.5
OTC	34.75	17.50	Legent Corp.	23.25	-0.75	-3.1
OTC	86.50	29.75	Lotus Development	41.25	7.75	23.1
OTC	18.00	6.00	Magic Software Enterprises	8.50	1.94	29.5
OTC	18.50	6.00	Manugistics Group Inc.	8.88	0.00	0.0
OTC	7.50	1.44	MathSoft (L)	2.13	-0.38	-15.0
OTC	11.25	4.50	McAfee Associates	9.00	0.75	9.1
OTC	17.25	8.88	Mentor Graphics	9.38	-0.63	-6.3
OTC	30.25	11.50	Micro Focus	15.63	0.00	0.0
OTC	11.63	4.63	Micrografx Inc.	5.38	0.13	2.4
OTC	55.25	35.63	Microsoft Corp.	55.25	2.88	5.5
OTC	40.13	22.88	Oracle Corp.	38.94	1.94	5.2
OTC	44.75	23.25	Parametric Technology	26.50	2.25	9.3
OTC	24.50	13.38	ParcPlace Systems Inc.	18.50	2.88	18.4
OTC	42.38	26.00	Peoplesoft	42.38	7.38	21.1
OTC	6.25	3.50	Phoenix Technologies	5.00	0.25	5.3
OTC	69.50	24.25	Powersoft	43.38	4.75	12.3
OTC	39.75	3.50	Platinum Software	6.50	0.00	0.0
OTC	16.25	7.25	Platinum Technology	16.25	1.13	7.4
OTC	60.25	27.00	Progress Software Corp.	33.75	3.00	9.8
OTC	4.13	1.94	Quarterdeck Office Sys.	2.38	0.00	0.0
OTC	29.25	9.50	Rainbow Technologies Inc. (L)	10.25	-1.25	-10.9
OTC	11.38	3.38	Rasterops (L)	4.13	0.38	10.0
OTC	14.50	2.88	Ross Systems	4.75	0.38	8.6
OTC	28.75	3.00	Sapiens Intl. Corp. N.V.	3.38	-0.13	-3.6
OTC	14.63	9.75	Softkey International Inc.	12.50	-0.13	-1.0
OTC	8.63	3.00	Software Publishing Corp.	3.38	0.00	0.0
OTC	13.75	5.00	State of the Art	6.75	0.00	0.0
NYS	35.63	21.75	Sterling Software Inc.	27.50	1.75	6.8
OTC	21.13	6.88	Struct. Dynamics Research	7.38	0.31	4.4
OTC	57.00	25.75	Sybase Inc.	43.94	6.63	17.8
OTC	20.50	9.88	Symantec Corp.	13.00	1.38	11.8
OTC	52.75	33.00	SynOpsys	39.88	3.75	10.4
OTC	24.25	11.75	System Software Assoc.	14.13	0.13	0.9
OTC	6.75	3.25	Trinzic Corp.	3.75	0.00	0.0
OTC	30.00	11.75	ViewLogic Systems	17.50	1.50	9.4
OTC	23.25	12.00	VMark Software Inc.	19.50	1.25	6.8
OTC	13.25	5.50	Walker Interactive Systems	7.25	0.13	1.8
OTC	60.00	24.75	Wall Data Inc.	34.25	0.63	1.9
Semiconductors						**UP 8.02%**
NYS	32.75	16.75	Advanced Micro Devices	28.00	1.50	5.7
NYS	31.25	19.38	Analog Devices Inc.	29.88	1.50	5.3
OTC	29.63	10.94	Atmel Corp.	25.50	2.88	12.7
OTC	7.50	3.63	Chips and Technologies	4.25	0.50	13.3
OTC	44.63	23.88	Cirrus Logic	29.63	1.75	6.3
NYS	19.88	11.25	Cypress Semiconductor Corp.	18.38	1.63	9.7
NYS	20.13	13.00	Dallas Semiconductor	16.13	0.63	4.0
OTC	27.75	14.75	Integrated Silicon Systems	22.00	2.00	10.0
OTC	74.50	55.88	Intel Corp.	60.38	3.13	5.5
NYS	29.63	13.00	LSI Logic Corp.	29.63	1.63	5.8
OTC	26.75	12.25	Lattice Semiconductor	18.75	0.50	2.7
NYS	42.38	15.16	Micron Technology	42.38	5.25	14.1
NYS	54.88	42.13	Motorola Inc.	53.75	1.25	2.4
NYS	25.00	14.38	National Semiconductor	18.13	0.38	2.1
OTC	11.13	6.75	Sierra Semiconductor	11.13	1.88	20.3
NYS	89.50	55.75	Texas Instruments	84.00	5.25	6.7
OTC	18.88	9.38	VLSI Technology	15.00	1.88	14.3
OTC	14.38	3.06	Weitek (L)	3.25	0.13	4.0
ASE	20.38	4.63	Western Digital Corp.	15.75	0.38	2.4
OTC	59.75	29.00	Xilinx	38.13	2.25	6.3
OTC	40.75	26.50	Zilog Inc.	31.00	4.00	14.8
Peripherals and Subsystems						**UP 2.95%**
OTC	30.50	14.50	American Power Conversion	16.50	1.00	6.5
OTC	24.75	17.25	Banctec Inc.	20.00	0.25	1.3
OTC	7.75	3.25	Cambex Corp.	3.75	-0.34	-8.4
ASE	7.38	1.88	Cognitronics Corp.	2.81	-0.13	-4.3
NYS	20.50	9.00	Conner Peripherals	12.63	0.88	7.4
OTC	24.00	8.75	Creative Technologies Inc.	19.13	-0.75	-3.8
OTC	15.25	3.78	Data Race Inc. (L)	4.00	-0.25	-5.9
ASE	10.75	4.13	Dataram Corp.	5.00	-0.13	-2.4
NYS	23.00	12.38	EMC Corp.	15.25	1.00	7.0
OTC	13.00	3.13	Emulex Corp.	8.25	0.00	0.0
OTC	21.00	11.75	Evans & Sutherland	12.50	0.00	0.0
OTC	22.50	8.75	Exabyte	17.69	2.31	15.0
OTC	34.00	2.63	Intelligent Info. Systems	4.38	0.38	9.4
OTC	4.38	1.00	Iomega Corp.	2.44	0.00	0.0
OTC	9.75	3.00	IPL Systems Inc.	3.50	-0.25	6.7
OTC	28.50	13.75	Komag Inc.	23.00	2.75	13.6
OTC	8.63	4.25	Maxtor Corp.	5.13	0.88	20.6
OTC	8.75	4.88	Micropolis Corp.	6.63	0.63	10.4
OTC	22.50	10.00	Pinnacle Micro Inc.	12.00	-1.50	-11.1
OTC	14.50	6.25	Printronix Inc. (H)	14.50	1.00	7.4
NYS	11.75	6.88	QMS Inc.	8.75	-0.13	-1.4
OTC	20.25	9.38	Quantum Corp.	17.13	0.81	5.0
OTC	9.13	3.63	Radius Inc.	5.00	0.00	0.0
NYS	17.75	7.25	Recognition International (L)	7.50	0.13	1.6
OTC	6.88	3.63	Rexon Inc.	5.25	0.50	10.5
NYS	28.75	16.25	Seagate Technology	26.00	1.00	4.0
NYS	41.50	23.75	Storage Technology	36.88	-0.88	-2.3
NYS	33.38	21.38	Tektronix Inc.	30.63	0.25	0.8
NYS	104.88	69.88	Xerox Corp.	104.50	2.63	2.6
Services						**UP 2.41%**
OTC	26.63	15.13	American Mgmt. Systems	26.63	-0.13	-0.5
NYS	4.25	2.50	Anacomp Inc.	3.00	0.38	14.3
OTC	23.50	14.50	Analysts Int'l	14.50	0.00	0.0
NYS	56.88	47.63	Auto Data Processing	52.88	0.50	1.0
OTC	18.25	11.00	Cambridge Tech. Partners	15.25	0.75	5.2
NYS	27.13	14.88	Ceridian Corp.	26.25	0.00	0.0
NYS	24.25	14.25	Comdisco Inc.	20.75	0.25	1.2
OTC	12.50	5.84	Computer Horizons	10.50	0.50	5.0
NYS	45.25	29.13	Computer Sciences	41.88	0.63	1.5
NYS	10.25	6.00	Computer Task Group	10.25	0.50	5.1
NYS	32.38	8.00	CompUSA Inc. (L)	8.25	0.00	0.0
OTC	13.50	6.38	Control Data Systems Inc.	6.63	-0.38	-5.4
OTC	11.00	6.13	Egghead Discount Software	6.75	0.13	1.9
NYS	38.00	26.50	General Motors E (EDS)	35.75	0.25	0.7
OTC	22.25	7.25	Inacom Corp.	9.25	0.50	5.7
OTC	28.00	13.63	Intelligent Electronics	15.00	0.69	4.8
OTC	22.50	7.00	Merisel	9.00	0.13	1.4
OTC	32.50	9.25	Microage Inc.	13.50	2.88	27.1
OTC	40.50	28.50	Paychex	32.75	-0.50	-1.5
NYS	39.75	22.25	Policy Management Sys.	33.50	-0.38	-1.1
NYS	25.50	18.63	Reynolds and Reynolds	25.50	0.88	3.6
OTC	28.50	16.50	SEI Corp.	18.75	0.63	3.4
OTC	29.38	20.38	Shared Medical Systems	23.75	-0.88	-3.6
OTC	11.00	5.06	SHL Systemhouse (L)	5.13	0.06	1.2
OTC	26.50	9.25	Software Spectrum Inc.	12.50	-0.75	-5.7
OTC	42.75	31.50	Sungard Data Systems	34.00	-1.00	-2.9

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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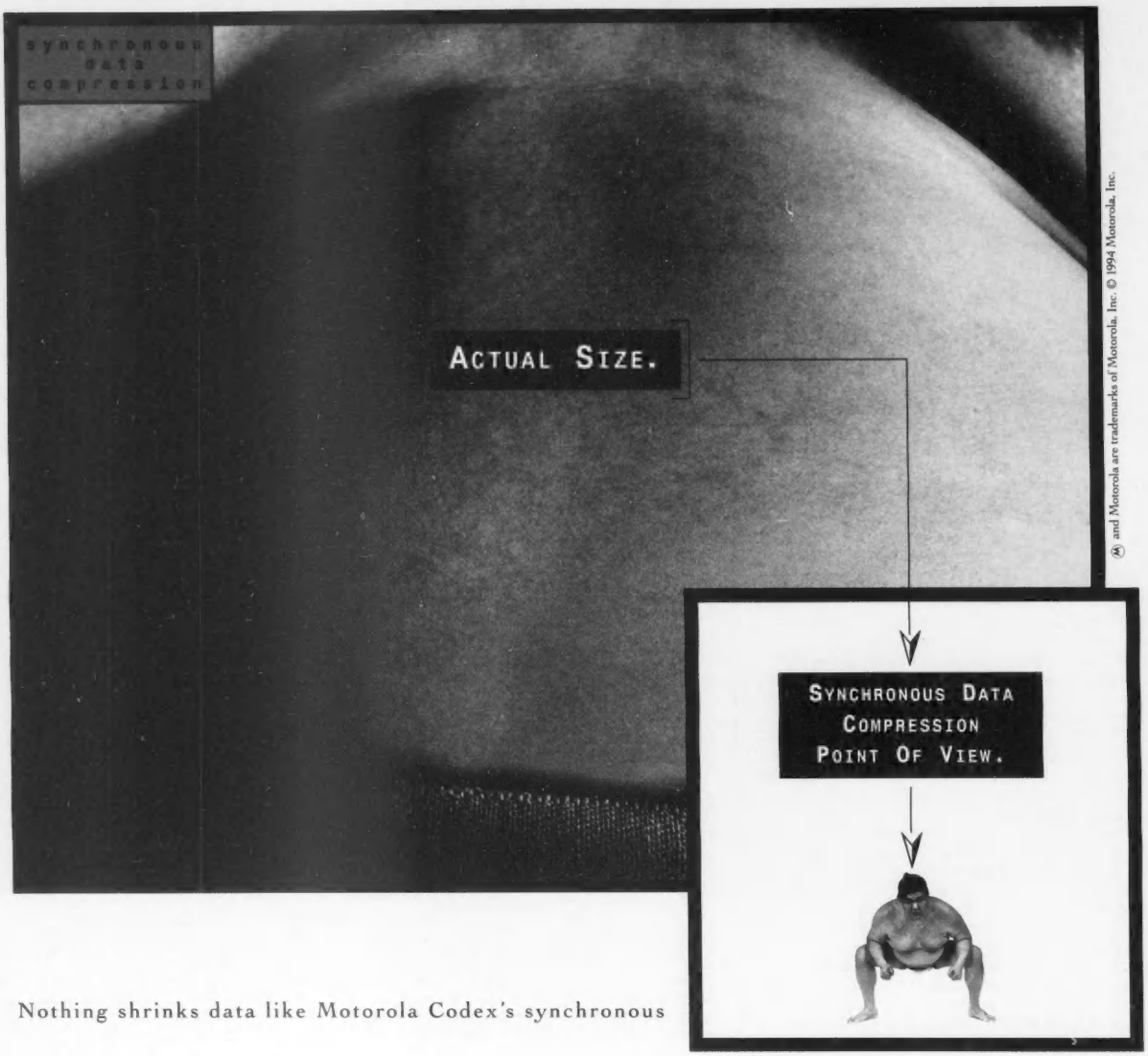

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MOTOROLA

IBM's upcoming NetView for OS/2 to support SNMP asset management

By Elisabeth Horwitt
BOSTON

■ IBM will announce a revamped and expanded version of its OS/2-based systems management platform this fall that will support Simple Network Management Protocol (SNMP) for the first time.

It will also offer far more commonality with its AIX-based sibling, NetView/6000, a company spokesman said at a customer briefing here last week.

Slated for shipment by Thanksgiving and demonstrated at last week's Share Technology Conference, NetView for OS/2 will act as a launching pad for IBM's 1995 rollout of a more integrated network management family, IBM spokesmen said.

Yet despite a broadened management range, NetView for OS/2 is not much more likely than its predecessor to move beyond staunch IBM OS/2 shops, said David Passmore, president of Herndon, Va., consultancy Decisis, Inc. LAN administrators with no embedded OS/2 base are likely to resist "climbing the OS/2 learning curve."

Versatility

The upcoming platform will be able to manage any device equipped with an SNMP agent — including most leading hubs, routers and LAN adapters — as well as Unix-based and Novell, Inc. NetWare servers, IBM product manager Roger Rea said. It will also manage IBM's LAN Server and OS/2 systems through SNMP agents to be released concurrently, he added.

NetView for OS/2's predecessor, LAN NetView, was based on the Common Management Information Protocol.

NetView for OS/2 will add asset management to LAN NetView's fault and performance management applications. In addition, the OS/2 platform will eventually provide a suite that shares common graphical interface and data repository, Rea said.

IBM is also preparing to announce by midyear a repository for NetView/6000 that will provide logical management data views across its host, AIX and OS/2-based systems [CW, Aug. 1].

Meanwhile, some big OS/2 installations are showing strong interest in NetView for OS/2. Provident Life and Accident Insurance Co., for example, is testing the product as a way of managing its distributed OS/2 and LAN Server environment, said Gerry Williamson, senior systems programmer for communications at the Chattanooga, Tenn., firm.

Metropolitan Life Insurance Co. is eyeing the product for managing its OS/2 Windows and DOS workstations, according to Tut Liu, a software consultant at the New York firm. The product's SNMP support "should also be useful as a way to integrate [the OS/2-based system] with our NetView/6000, which manages routers and bridges," he said.

NetView for OS/2 will be priced somewhere between NetView for Windows, which is priced at $2,000, and NetView/6000, which costs $15,000, Rea said.

Software agents

CONTINUED FROM PAGE 1

skeptical. "I don't know. Bozo filters don't work because you don't know who will be a bozo when," said Rick Golobic, senior member technical staff at Concert, a joint MCI Communications Corp./BT North America, Inc. venture in San Jose, Calif.

"There's plenty of places for agents. We just need to not get swallowed in hype and recognize that it's also a behavioral issue," said Carol Anne Ogdin, a principal designer at Deep Woods Technology, a consulting firm in Santa Clara, Calif.

A main contributor to cyberglut is the proliferation of useless information — a situation made possible by E-mail, Ogdin said in a session at GroupWare.

Unspecial delivery

A survey of 125 E-mail users in a professional service company with 400 employees found that:

- **17%** of messages people received per day were irrelevant to them
- **12** minutes per user per day were spent processing the irrelevant messages
- **$40** **million** per year worth of paid employee time was spent processing irrelevant messages

Source: Deep Woods Technology, Santa Clara, Calif.

Abusing E-mail

For one, E-mail makes it easier to broadcast information to large mailing lists. Often, end users cannot tell from the subject line whether the message is pertinent. And unlike the more interactive telephone, there is no immediate way to let the sender know you are not interested.

"The problem is everybody sends copies of everything to everybody," said Bill Moroney, executive director of the Electronic Messaging Association (EMA), an Arlington, Va., group that works to address users' messaging issues. "It's like when copiers were new and we made copies of everything. That got nipped in the bud when companies put counters on the copiers, and individuals got numbers."

Most E-mail programs already let the sender mark certain messages as urgent. But what the sender believes is urgent, the recipient may ignore, Golobic said.

"It isn't that people want to send annoying E-mail. It's that they are clueless," said Art Giser, an independent consultant in San Francisco.

E-mail overload

The issue is coming to a head now as more users become connected to E-mail outside the company. Also, more executives have E-mail on their desktops and experience the overload firsthand, Moroney said.

To help understand the broader ramifications, the EMA is launching a study into users' messaging habits and plans to publish the results next spring, he said.

Although data on the matter is scarce, Ogdin said a study done for a 400-employee client found that processing irrelevant E-mail took a total of 80 hours of employees' time per day (see chart).

The annoyance factor aside, a typical response to overwheiming amounts of irrelevant E-mail is to stop checking E-mail, Ogdin said. Then it is no longer a good medium for mission-critical data.

User lawsuits drag on

CONTINUED FROM PAGE 1

proprietary VRX operating system as well as the ITX operating system itself.

All told, the charges range from breach of contract to fraud to racketeering under the Racketeer Influenced and Corrupt Organizations Act (RICO). Damages claimed range from the cost of hardware, software and services ($800,000 for one banking customer) to more than $3 million for one customer filing under RICO.

"It's really got me in a hole," said litigant Joe Hopper, referring to Warehouse Manager. Hopper is president of Hopper Specialty Co., a distributor of industrial hardware for oil and gas drillers in northwest New Mexico.

Terminal lockups, system deadlocks, slow processing and data corruption are the ills recited by Hopper and other Warehouse Manager users filing claims.

After purchasing the system in 1988, Hopper watched his then-$4 million business dwindle to $1 million in annual sales today. He is seeking $4.2 million in lost profits plus the cost of the system, which he placed at $250,000 to $300,000.

An AT&T GIS spokesman acknowledged that Warehouse Manager is "a product that failed" and one that should have been "tested more thoroughly" when it was ported to the ITX operating system. The company no longer sells Warehouse Manager and claims to have settled all but eight of the more than 30 cases.

Tarnished image

The litigation is not expected to affect AT&T GIS revenue. Industry analysts also emphasized that lawsuits are common for large systems vendors. However, the negative publicity is troublesome, particularly for a vendor attempting to reshape itself as a solutions provider for vertical industries.

Because the cases involve either the NCR 9000 or 10000 systems and applications running on the ITX and VRX operating systems — a small and dwindling piece of AT&T GIS' revenue stream — several customers said the company has little incentive to take extraordinary measures to compensate the claimants.

But an AT&T GIS spokesman disagreed with that assessment, saying, "In all instances, we have always erred on the side of the customer."

In settling the cases, AT&T uses its Universal Agreement, which limits payments to the original cost of the products and services acquired, minus depreciation for use of the equipment.

One case not involving Warehouse Manager is that of Fulton Provisions Co. in Portland, Ore. The company reached a settlement with AT&T GIS for Automated Food Control System from Smith Data Systems, which also ran on ITX.

In another case, Daisy Manufacturing in Rogers, Ark., lays the blame on the ITX operating system itself, according to attorney Ralph Barbier. "We haven't completed the discovery process, but it is our contention that many other companies have experienced [similar] problems," he said.

The troubles cited in those cases — terminal lockup, data corruption and system deadlocks — are strikingly similar to the Warehouse Manager suits, court documents showed.

In addition, at least four banks have filed lawsuits for damages incurred through the use of an AT&T GIS financial services package called Universal Financial System. They are Warwick Savings Bank in Warwick, N.Y., Pawling Savings Bank in Newburgh, N.Y., First Bank of Orlando, Fla., (acquired last year by the Resolution Trust Corp.) and Central National Bank & Trust in Enid, Okla.

A reported 30 to 40 banks have bought the system, but most have discarded it, said a number of banking officials interviewed last week.

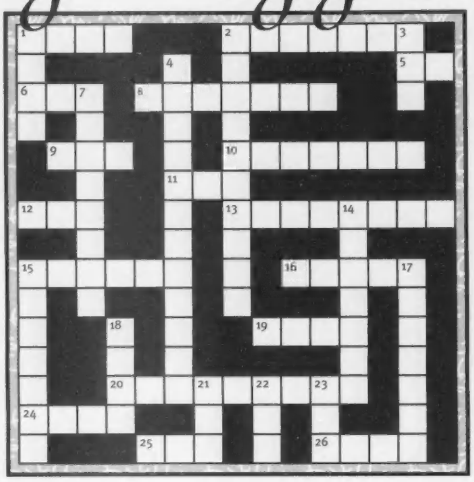
The software, they said, never performed correctly. Most have turned back to an older NCR application or are looking at client/server systems from other companies.

"We have documentation that they sold us a bill of goods," said the president of a bank who wished to remain anonymous.

"The problems in these banks have been absolutely catastrophic," said Norm Cohen, a consultant specializing in computer litigation at Computer Consulting Systems in Atlanta.

Last July, a Westchester County, N.Y., arbitrator ordered NCR to pay Warwick Savings $818,000 in damages following problems the bank suffered during its two-year struggle with the software in 1988 and 1989. Warwick employees declined to comment, as did the attorney who represented them.

Wysiwyg



ACROSS

1. Graphic symbol on-screen.
2. Translate from a source to an executable program.
5. Acronym for extended architecture.
6. Potentially harmful computer emissions.
8. G-word in GIGO.
9. Portfolio manager's concern.
10. R-word in RISC.
11. College computer major.
12. _____ key.
13. Programming model.
15. What book publishers do with disks.
16. Hypercard file.
19. Cancel the last command.
20. User-defined _____.
24. _____CAD (one word).
25. Direct-access storage device.
26. Token-_____.

DOWN

1. Worldwide engineering association.
2. Digital realm.
3. Executable extension.
4. Movie about virtual reality.
7. _____-point.
14. Message boxes with user controls.
15. Pertaining to binary notation.
17. Reduction of space between characters.
18. First-in, first-out.
21. Another executable file extension.
22. Worldwide standard setters.
23. Basic logic operator.

SOURCE: From the Spring 1994 issue of the McGraw-Hill Computer Book Update

ANSWERS

ACROSS
1. Icon
2. Compile
5. AA
6. Elf
8. Garbage
9. ROI
10. Reduced
11. MIS
12. Hot
13. Paradigm
15. Bundle
16. Stack
19. Undo
20. Functions
24. Auto
25. RAM
26. Ring

DOWN
1. IEEE
2. Cyberspace
3. EXE
4. Lawnmower Man
7. Floating
14. Dialogs
15. Boolean
17. Kerning
18. FIFO
21. COM
22. ISO
23. NOR

WYSIWYG compiled by Lory Dix. Illustration & Design by Dave Marshall

Inside Lines

Digital's Rdb database still trolling for a buyer

Computer Associates has bowed out of talks with Digital about buying the Rdb business, leaving Oracle as the most likely candidate, a source close to CA said. While most observers say Oracle's main interest in the Rdb is the large installed base, the company could benefit from the purchase since Digital reportedly made money on Rdb in 1993. Digital and Oracle executives declined to comment on the possible deal, which one Wall Street analyst speculated would be announced within 30 to 60 days "if they can come to terms."

You make me feel like a natural keyboard . . .

Microsoft's Natural Keyboard, due out this fall, boasts a special contoured keyboard for better ergonomics, sources said. The keyboard would be the envy of any cybersurfer, with its aerodynamic angles and swooping wrist rest. The keys slant inward, so hands point in when typing. The keyboard will be the first to contain a warning label about the dangers of typing. Perhaps Microsoft wants to cover its assets in case Repetitive Stress Injury sufferers are better at lawsuits than the Department of Justice.

Bill Gates: Slave to fashion?

Bill Gates may just be the next *GQ*-esque computer executive. National Public Radio's "Talk of the Nation" last week tackled the weighty issue of workplace fashion. One of the style experts on the panel noted that Gates' personal tailor had called him recently looking for advice. Seems the tailor is stuck with the unenviable task of giving the rumpled, rather casual billionaire "a makeover."

Compaq's RISC-y little secret

Compaq is working on a prototype "microprocessor-independent box," according to a senior executive at the company. The server will be able to use a wide variety of processors including RISC chips such as PowerPC, Sun Microsystems' SPARC and HP's PA-RISC. Like Digital's DECpc XL series of desktop computers, Compaq's box could give users mobility between CICS and RISC architectures within the same hardware platform through exchangeable processor cards.

The sword in the stone

Racal-Datacom and Wellfleet next week are expected to join forces in the remote-access market. Racal's Excalibur DSU/CSU platform will merge with Wellfleet's Access Node 2000 remote office router. The device will ease the migration of mainframe applications to client/server environments in branch offices, according to sources close to Racal. The deal marks Wellfleet's first joint development effort with another provider for remote access, the sources said.

Simon says: Sell

BellSouth will today introduce Simon, its IBM-designed smart phone. The brick-size cellular phone has a pen for digital ink input, a PCMCIA slot, a 9.6K bit/sec. fax/modem and a series of menus for address books and phone numbers. It doesn't have a dial pad because calls are made by touching the pen to the digitized number pad on-screen. People may not listen to the Simon pitch, though, when they see the price tag. Sources say Simon will sell for more than $900, a lot of money for a cellular phone with a fax.

We're especially fond of this tongue-in-cheek caveat that accompanies a shareware package called EasyFlow: "If EasyFlow doesn't work, tough. If you lose millions because EasyFlow messes up, it's you that's out millions, not us. If you don't like this disclaimer, tough. We reserve the right to do the absolute minimum provided by law, up to and including nothing. This is basically the same disclaimer that comes with all software packages, but ours is in plain English and theirs are in legalese. We didn't really want to include any disclaimer at all, but our lawyers insisted." To get in touch with Computerworld *about similar amusing tips or real news items, call our 24-hour, voice-mail tip line at (508) 820-8555 or our toll-free number at (800) 343-6474. News editor Maryfran Johnson can be reached by phone at (508) 820-8179, via the Internet at mjohnson@cw.com or through MCI Mail at 590-8017.*

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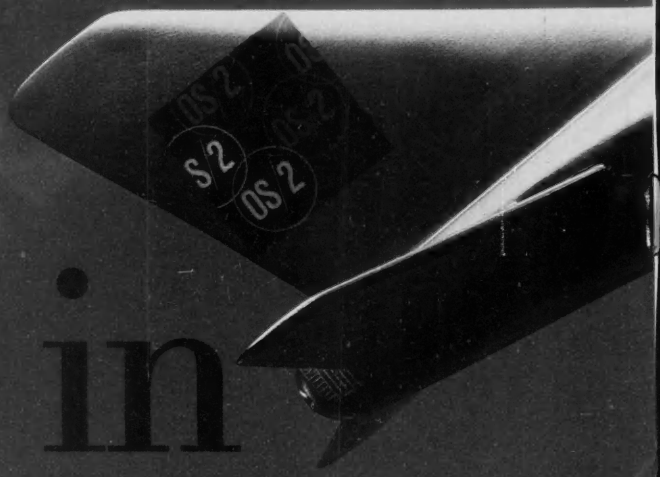

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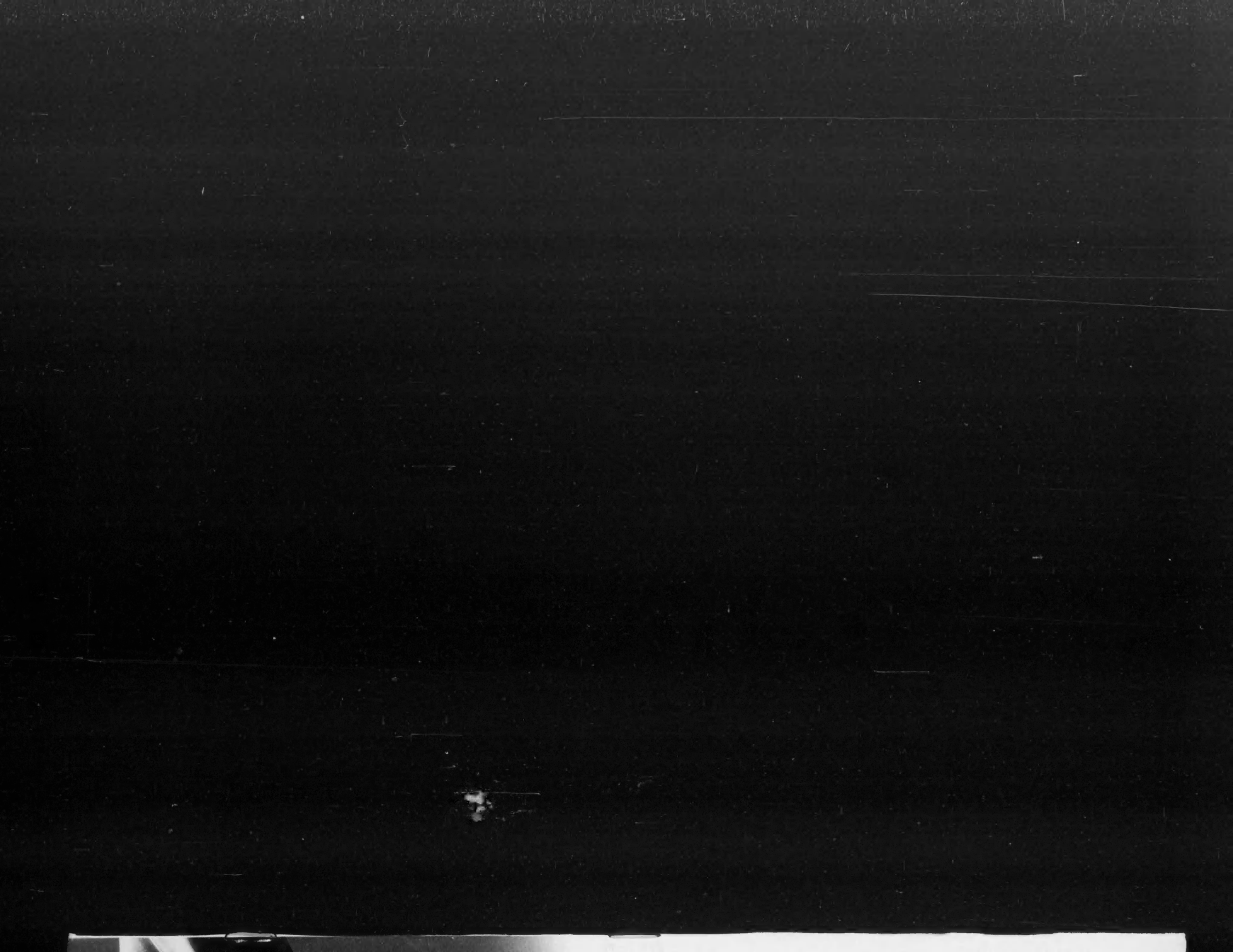
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